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Test Papers.

On the otherwise barren rocks which fringe the shore of the Cape de Verd Islands grows the archil—a famous seaweed of lichen, renowned among dyers. By a particular process of manufacture this archil yields a beautiful blue pigment, known in the chemical laboratory by the name of *litmus*. Few colors are more fugitive than litmus. Being a fine violet-blue, it is changed to red by so minute a portion of any acid that it becomes, when properly applied, *a test* of the presence of the latter substance. As it is so frequently desirable to know whether a fluid be acid or alkaline, one of the first practical lessons to a student in chemistry is to prepare litmus test paper thus: Put into a tumbler half an ounce of litmus and three ounces of water; let them remain together in a warm place for a few hours, then filter the dark blue liquid from its impurities, divide the solution obtained into two parts, pour one portion into a saucer, and soak strips of white writing paper in it until it has acquired a distinct blue color. If not colored enough by once dipping and drying, repeat the operation. When dry, preserve these strips in a box labelled "Blue litmus test papers." These serve to *test* any fluid, to ascertain if it has an *acid* reaction. It is instructive to learn how very small a portion of any acid in water will be indicated by the reddening of the litmus. With the second portion of the fluid mix cautiously a few drops of lemon juice until it is red; then color paper as before. When dry, this "red litmus test paper" serves to indicate the presence of alkalies, a class of bodies opposed to acids. Red litmus test paper on being put into any fluid that is *alkaline*, such as lime water, is immediately restored to its original blue color. Put the ashes of a cigar into water; the liquid when "tested" will indicate the presence of an alkali. To test stale milk; if blue paper becomes red the milk is sour—it is acid.

A Perverted Nautical Taste.

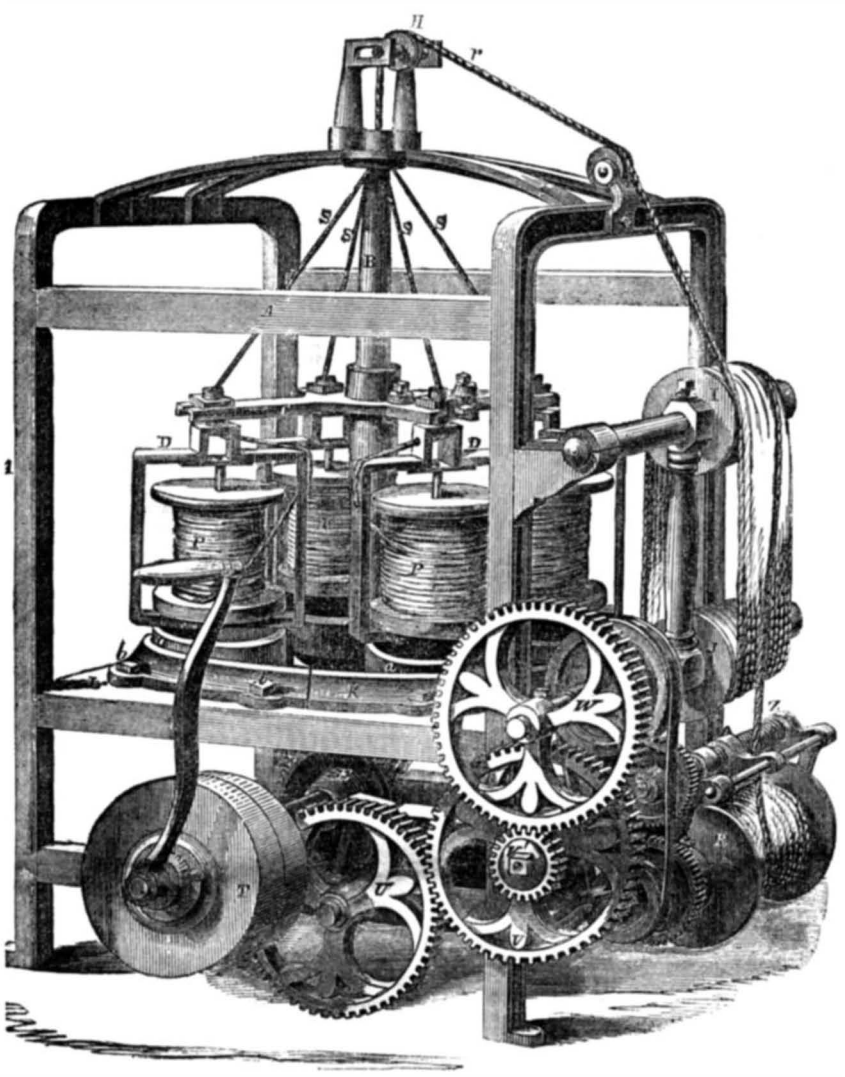
The editor of the London *Mechanics' Magazine* says "the frigate *Niagara* is without exception the ugliest man-of-war we have ever seen. On visiting her at Gravesend, we approached her on the bow, and looked in vain for a single beauty of form about her."

What a nautical taste! If the *Niagara* had a bow as bluff as a tub, and overhanging like the mountains in a Chinese picture, it would no doubt have excited the admiration of our cotemporary.

Erratum.

Mr. Willis Humiston's candle machine, illustrated in our last number, was patented July 24, 1855. The patent of 1854—the date of which was given by mistake—was for another and less valuable improvement, in which the candles are drawn from the molds by pulling on the wicks. We may add that both inventions are applicable to the manufacture of sperm and stearine, or adamantine candles, as well as tallow.

WALLWORK'S ROPE MACHINE.



The accompanying figure is a perspective view of the improved rope-making machine, for which a patent was issued to Milton Wallwork on the 7th of April last. The improvement relates to the "sun and planet" rope machine, and consists in the means of controlling the speed of the strand flyers, for enabling the twist of the strands to be varied with facility. The figure represents the application of the machine to laying rope in a very small space, obviating the use of long rope walks.

A represents the frame of the machine, and B is the upright or main laying spindle, which rotates in suitable bearings in the frame, and carries a spider, C, at the top, and one at the foot above the table or platform, These contain the bearings of the journals of the strand flyers, D D, in which are the strand spools, P P P, but cans may be employed instead of the spools. E is a horizontal driving shaft, on which, under the table, is a bevel wheel, gearing into a bevel pinion on the foot of the laying spindle, B. Above this spindle is a guide pulley, H, to conduct the rope *r*—formed by twisting the strands, S S, S S, in the laying top—to the reel rollers, I J, from which it is carried and wound up regularly, as fast as it is made, on the capstan, R.

By the rotation of the laying spindle, B, it will be observed how the strands, S S, are laid or twisted into rope in the laying top, and afterwards wound or *built* on the capstan. But in laying rope, the twist given to the united strands being contrary to that of the strand twist, it is necessary to give the strands a counter twist at the time the laying twist is given to the united strands. It is desirable and necessary that means should be provided to give the strands a variable twist according to the kind of rope to be manufactured. In this machine the devices for accomplishing this object are exceedingly simple.

Each of the flyers, D D, is furnished—just above its lower journal—with a roller, *a*. Immediately below the level of these rollers on the table, L, (which has a circular opening in it, large enough to allow the whole frame of flyers to revolve,) there are bolted a series of segments, K, which form portions of a stationary ring encircling the rollers, *a*, and in contact with them. These segments are adjustable by means of the screw bolts, *b b*, passing through slots. As the spindle B rotates, carrying the strand flyers round, the contact of the rollers, *a a*, with the interior face of the segments, K, causes these rollers to rotate the strand spindles, thus giving them rotation in a contrary direction to that of the *lay* of the rope, and the necessary motion to produce the counter strand twist. One or more of these segments may be easily moved out of contact with the rollers, *a a*, or taken off altogether. When all the segments, K, forming a continuous ring, touch the rollers, *a*, the flyers receive a motion on their axes during their whole revolution round the spindle, and thus give the maximum twist to the strands. By the removal of one or more of the segments K from the circle, the rotation of the strand flyers on their axes is graduated; the greater the number of segments removed, the less will be the twist of the strands. To prevent the untwisting of the strands when the rollers *a* are passing those parts of the circle where they do not touch the segments, there are ratchets and pawls (not seen) which allow the rollers, *a a*, to turn only in one direction. In this manner the strand spindles are rotated, and their motion regulated as desired by the simple stationary sectional ring K.

The take-up motion is produced by gearing from a pinion on the main shaft of pully T, giving motion to wheel U, thence to wheel V, pinion V', and wheel W, on the shaft of roller J; a band passing from a pully on this roller shaft rotates the capstan R; the rope is laid regularly on the capstan by a traversing guide on the rotating double screw shaft Z, and the take-up of the capstan, as the coil increases in size, is regulated by graduating its rotation through compensating gearing. This rope machine is compact in form, and very simple in its construction and arrangement of parts. The efforts made to construct short rope machines of as great simplicity as the machinery now employed in long rope walks will doubtless result in practical success.

For more information address Mr. Wallwork, or Mr. Stephen Williams, at Hoosick Falls, N. Y.

Interesting Gunpowder Experiment.

The following is from the *Druggists' Circular*, a very useful and able new weekly, published in this city:—

In his seventh lecture, at the Smithsonian Institute, Dr. Reid described the failure of an intending incendiary to do a great act of mischief by the very means he adopted to make his success more certain. Thus to ensure an explosion of gunpowder in a certain case, the fellow had covered it with a quantity of spirits of turpentine, but on igniting it only the turpentine burnt, and the powder continued as before. The philosophy of this the lecturer showed, by a striking experiment wherein, again and again, turpentine poured on a quantity of gunpowder was ignited and burned out, and the powder remained unburnt. This was explained on the principle of the candle, that the gunpowner acts as a wick to the turpentine, and will not itself ignite so long as any of the turpentine remains to burn. A piece of common cotton cloth, such as ladies' dresses are made of, was then burnt; and then a piece of similar texture which had been dipped in a solution of sal ammoniac, was exposed to the action of fire, but would not burn. A similar piece, steeped in a solution of silicate of potash, was also shown to be quite incombustible.

Silver in New Jersey.

Paterson and vicinity apparently is destined to be one of the most noted spots in the country. Already it has become celebrated for the discovery of pearls, and now, the *Guardian* states that veins of copper and silver have been struck in Garret mountain. A shaft about fifty-five feet deep has been sunk, and a bed of copper ore, sixteen feet thick, has been found. Some distance below the copper a vein of silver ore has been struck. The thickness of this at the place where the shaft was sunk is stated to be between two and three feet. No intimation is given of the nature of the ores of either metal, and if not entirely a myth, analysis will probably show both these "ores" to be much too poor for working.

Collodion Photography.

English papers record the decease of Frederick S. Archer, the inventor of the "collodion process" in photography. After numerous experiments, he discovered the mode of rendering collodion sensitive and obedient to the photographic process, by means of which the most interesting objects in nature as well as art are now portrayed, not only with unerring correctness, but are also transfixed almost as quick as the lightnings' flash. The collodion process has enabled skillful artists to take copies of shore scenes while passing along on board of a steamboat.

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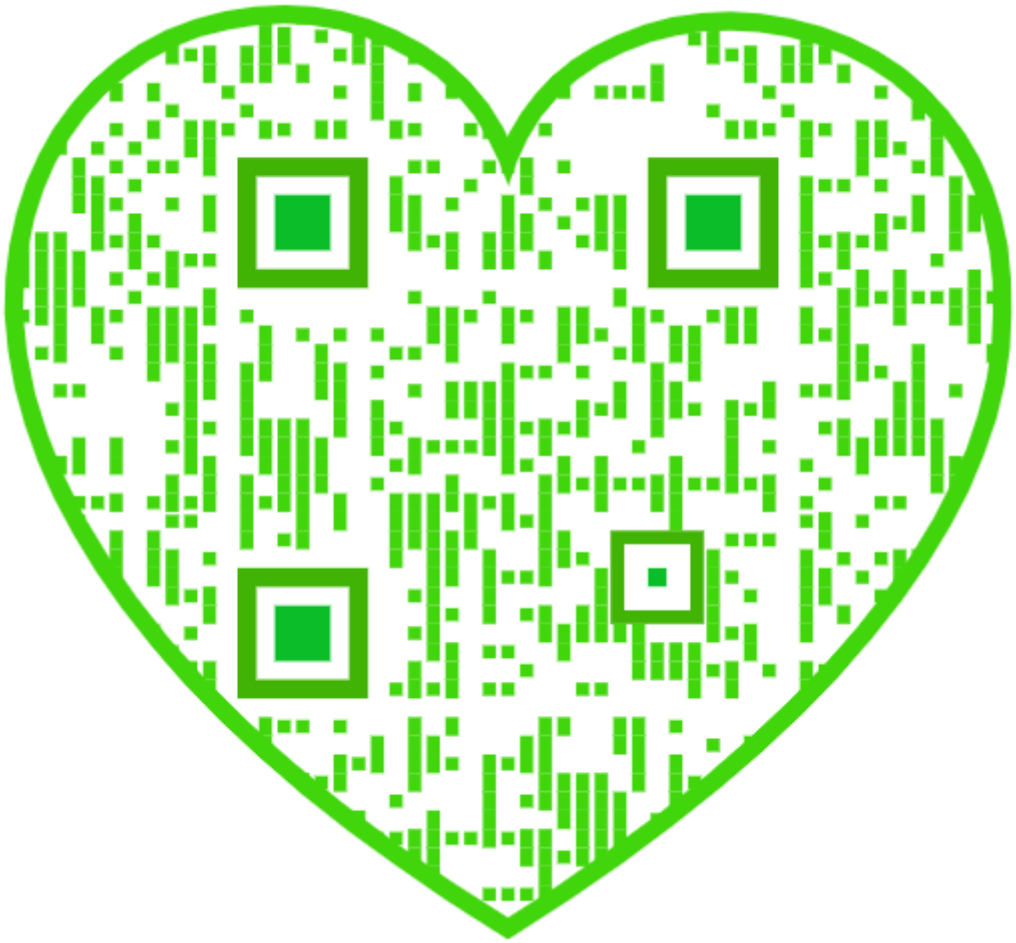

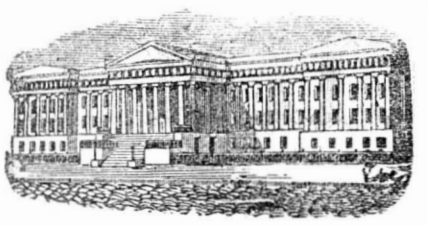

[Reported officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING JUNE 9, 1857.

BLOTTER—R. G. Allerton, of New York City: I claim a blotter constructed substantially as described, having a convex surface containing the blotting material, with a handle in the opposite side, so as not to revolve, but to be used by a single rocking motion.

REPAIRING R.R. BARS—Lyman Beebe and George F. Smith, of Michigan City, Ind: We claim the wedge-shaped jaws fitted to the iron to be worked, in combination with the iron bed block fitted to receive them, into which they slide, and by which they are firmly held.

We also claim the two jaws, in combination with the double lever, in which they rest, and by which they are readily opened by raising to receive and discharge the rails.

HOLDING THE BIT IN THE BRACE—George Benjamin, of Avoca, N. Y.: I claim the invention of the hook and lever and standard, as shown, Nos. 3 and 4, as applied to the brace socket, and the application of the spring, No. 6, the burr, No. 7, and the notch, No. 8, on the outside of the brace socket, as represented and described.

ROUNDING AND BACKING BOOKS—Theodore Bergner, of Philadelphia, Pa.: I am aware that a roller and swing frame are employed in the backing machine of John A. Elder, patented July 26, 1853. I therefore do not claim these parts.

But I claim first, Giving a sliding motion to the clamps, F F, by means of segments, M M, and pinions, q q, or any equivalents to the same, substantially in the manner and for the purpose specified.

Second, I claim the sliding table, D, plate, E E', and clamps, F F', in combination with the swing frame, Z, and roller, B', the whole being constructed and operating substantially in the manner and for the purpose set forth.

Third, I claim the employment, in combination with the sliding clamps, of adjustable blocks l, substantially in the manner and for the purpose described.

COVERING INSULATED WIRE WITH LEAD OR OTHER DUCTILE METAL—Samuel C. Bishop, of New York City: I claim causing the metal and insulated wire to move in separate channels toward a die, where they are to be united, and preventing the gum from being heated while it and the lead advance toward the die by a current of fluid, passing in a suitable vessel or vessels between the metal and gum to receive and carry off the caloric, all substantially as described.

GROOVING STOVE PIPE—Charles Bigelow, of Hastings, Min Ter.: I claim the roller, D, having its periphery or face formed of a grooved or concave surface, and a flat surface, the roller being placed within a reciprocating bar, C, and within a yoke, E, arranged and actuated by the lever, F, and ledges, u u, as shown, whereby the roller is shifted or moved automatically at the ends of its strokes or movements, and made to groove and close the joints or seams of the pipes at one operation.

I further claim the bar. B, when jointed to the upright A, and secured to the projection, c, by the pin, d, as shown and used, in connection with the lever, f, and spring, t, as described, so that said bar may be thrown out automatically from the projection, c, for the purpose of allowing the finished pipe to be removed readily therefrom, and another placed thereon.

[A roller having a groove and also a flat surface is employed in this machine, fitted into a reciprocating bar, and so arranged to shift automatically as to allow the grooved part and flat surface to pass successively over the seam of the pipe. The groove of the roller passes over the seam of the pipe while moving in one direction; the flat surface passes over it while moving in the contrary direction. All the parts are so arranged and operated that the seams of the pipes are closed in a most expeditious and perfect manner.]

STEAM HEATING STOVE—Asa Blood, of Norfolk, Va.: I claim the arrangement of the water chamber, N, chambers, E and L' and o, pillars, H H', and H2, hollow grates and tubes, R and R', as set forth.

PARING, CORING AND QUARTERING APPLES—Chas. F. Bosworth, of Petersham, Mass.: I do not claim broadly paring, coring and quartering an apple by machinery.

But I claim, in combination with the stationary quartering and coring knives, the forkshaft, when so arranged in relation to each other and to the mechanism operating the machine that it shall steadily propel the apple in the direction of, and while revolving upon, the axis of the corer, whereby one or more apples may be graduated and cored while another is pared.

METALLIC BAND FASTENING FOR BALES, &C.—Asa O. Broad, of Louisville, Ky.: I claim a metallic hoop or band, whose ends are united by the bows or curves, a a, slide, B, and pin, C, as set forth.

SELF-LOADING CART—J. S. Brown, of Washington, D C.: I do not claim a revolving elevator nor a scraper alone.

But I claim the combination of a revolving elevator and a scraper, substantially in the manner specified.

I also claim the employment of the cranks, M M, on the axle, for the purpose of raising and lowering the elevator and scraper by simply turning the axle half a revolution.

I also claim the use of the winch, o, attached to the projecting end of the axle, for the purpose of giving the proper movement to the said axle, in the manner described.

I also claim the arrangement of the lifting bars, Q Q, cranks, M M l l, hangers, S S, and brace bars, R R, substantially in the manner and for the purpose set forth.

I also claim the stops, m m, on the frame, A, arranged in combination with the crank, l l, substantially in the manner and for the purposes specified.

MANUFACTURING FELT CLOTH—Thomas B. Butler, of Norwalk, Conn.: I do not claim the frame driving gear, B. gears, C D E, shaft, F, bevel gears, G G, shaft, H, pinion gears, a a, chains, R, the four carrier combs, i i i i, comb circle and spring, j, tripping pins, i2, or the bearings upon the chains for the comb gudgeons, all which are essential parts of the machine as originally invented and patented by John Arnold, on the 15th of July, 18.9.

But I claim first, The flanged track plates, o o, arranged substantially as described, and for the purposes set forth.

Second, The movable tripping plates, l l, arranged and operated substantially as described and for the purposes set forth.

Third, The rising frame, S, and rolls, e e, operated and graduated substantially as described and for the purposes set forth.

CARPET FASTENINGS—David N. B. Coffin, Jr., of Newton, Mass.: I claim a screw having a head arranged at one side of its axis, so that it may be applied and operated as set forth, or so that the screws may require a turn of only a part of a revolution to secure or to release the carpet after being screwed into their places, and whereby it is made practicable to take up a carpet and replace it in a very short space of time, and with great ease. In other words I claim the eccentric headed screws for securing carpets to floors, and for similar purposes.

RAILROAD SWITCH LOCK—Wm. L. Cawthro, of Harper's Ferry, Va.. I claim the arrangement upon the lock plate of the curved securing arm, A, constructed and operating as described, for the purpose specified.

DRYING PASTEBOARD—Patrick Clark, of Rahway, N. J.: I am aware that hollow tables have been used for drying purposes, the materials spread on the top of them to be dried. But I am not aware that one heated hollow table was ever placed above another for such or any other purpose, or arranged in the manner I have described.

And I am also aware that heated hollow plates have been used for heating purposes. But I am not aware that they have been used in the manner described.

I claim the arrangement of the series of hollow heated plates for drying purposes, substantially as described and for the purpose set forth.

CATCH FOR DOORS—Jeremiah M. Crosby, of Norwalk, O.: I claim the employment of the additional soft spring, F, and connecting slide, S, or its equivalent, between and in combination with the bolt, B, and main spring. E, arranged and operated substantiallly in the manner and for the purpose specified.

BAKERS' OVENS—John Chilcott, of Brooklyn, N. Y.: I do not claim a continuously operating oven, as I am aware that endless chains have been employed in ovens to convey the bread from one part, where it is received, to another part from whence it is discharged, after having been baked during its travel from one part to the other.

Nor do I claim generally the employment within an oven of a horizontal rotating table, as I am aware that small ovens have been provided with such tables, to turn a loaf or other article placed upon it, from time to time.

But I claim providing each car by which the bread is conveyed to and from the oven with a pan or tray, that is hung upon journals, and is overturned at a suitable stage in the baking process, by the automatic mechanical agency described, for the purpose of inverting the position of the bread, and thus causing the bread to be baked more uniformly.

[This improvement is designed to obtain a continuous operation of the oven without any material interruption in the introduction of the dough, and its withdrawal after being baked into bread. It has a horizontal table rotating on a vertical axis, which is furnished with radial tracks, to receive and discharge at the doors covered perforated trays containing the bread. These tracks are so operated that the bread is turned in the oven, to bake all sides of the loaves equally.]

ROPE MACHINES—Wm. R. Dutcher, of Lansingburgh, N. Y.: I do not claim a friction applied between the motive power and the reel, and allow the latter to slip and only wind the rope as made. But I am not aware that an adjustable friction plate has ever before been applied in such a manner by the screw and spring, 23, as to be adjusted and adapted to different characters of rope.

I claim the self-adjusting thimble, m or o, combined with the cone, l or n, when kept towards the said cone by suitable yielding pressure, for the purpose of laying up either the strand or rope and adjusting itself to any inequalities without breaking either the yarns or strands, substantially as and for the purposes specified.

ROOFING MACHINES—J. B. Driscole, of Knoxville, Tenn.: In view of G. W. Burling's patent, Oct. 28, 1856, I disclaim the broad idea of folding the edges of metallic plates by means of a bar interposed between two parallel bars, one of which is movable.

I claim the employment of a swinging bar, E, hinged or swinging between the frame or side plates, D D, in the manner and for the purposes substantially as described.

[This machine is designed for forming the vertical laps of sheet metal roofs that run in ridges from the eave to the crown. The sheets are prepared in long strips running from end to end of the roof; these strips are united together longitudinally on the roof, and receive a double lap. It has been very difficult to make such joints accurately. This machine forms them on the roof very rapidly, and in a most perfect manner, giving them a uniform and beautiful finish.]

GRAIN SEPARATORS—Elihu Doud, of Oshkosh, Wis.: I am aware that fans have been employed in various ways for generating blasts, and screens have also been used and applied in various ways in grain separating machines.

I therefore do not claim either of the parts described, separately, or in themselves considered.

I claim the vibrating shoe, N, provided with the screens, g o, and arranged relatively with the box or chest, C, and deflecting board, b, as shown, in combination with trunk, D, and fan, E, for the purpose set forth.

[In this grain separator the parts for executing the different operations required for separating the good grain from impurities are very simple in themselves, and are arranged in an excellent manner to execute their work very effectively.]

CARD PRINTING PRESS—Charles E. Emery, of Canandaigua, N. Y.: I do not claim the principle or manner described of applying the power.

But I claim, first, The general construction of the machine, and the arrangement and combination of its parts, said parts being arranged, combined, and operated in a manner equivalent to that described, so as to accomplish the object of the invention, the operation of each part being adapted to the vibratory movement by which the machine is operated, and the pressure feeding and discharging contrivances of the machine being combined with the inking arrangement described, or with equivalent to it.

Second, The manner of adjusting and operating the grippers, k k, which hold the card, in combination with the manner of operating and stopping the operation of the plate, r, upon which the card is laid, both being operated by the simple vibratory movement of the moving surface, which gives the impression.

MAKING HORSE-SHOE NAILS—Calvin Carpenter, Jr., of Providence, R. I.: I do not claim the cutting of the nail plate in such a manner as to make the heads and points of the blanks from opposite edges of the plate alternately, by turning over the plate, as that is done in cutting brads and other cut nails, for which purposes straight cutters are used.

But I claim first, The attachment of the lower die, b, to, or construction thereof, as a part of a plate, I, which has such a sliding movement, horizontally or otherwise, below the lower cutter, at right angles to the movements of the cutters, and closing movement of the dies, as described, that the die receives the blank from the cutters while it is in a stationary condition, and then conveys it under the top die, and in returning has the finished nail pushed off it by the lower cutter, substantially as specified.

Second, The gage, K, applied to the lever, G, or its equivalent, which carries the upper die, and operating as described, in combination with a stationary slotted standard, T, by which it is moved out of the way as the dies close, and which also serves to adjust it to give a greater or less width to the nail blanks.

[All kinds of wrought iron nails with heads can be made by this machine, either from cold or heated iron. It has an adjustable gage, to receive plates of different sizes, for making long and short nails. A curved cutter is employed for cutting out the blanks, and the plate is turned over after every cut. The blanks for the nails are cut out without any waste of material.]

SELF-ACTING WAGON BRAKE—M. C. Chamberlain, of Johnsonsburgh, N. Y.: I claim the arrangement of brake bars, G, slotted arms, O, and levers, H, when used for self-acting brakes for vehicles, all operating in the manner and for the purpose set forth.

MITER BOX—George L. Chapin, of Perrysburgh, N. Y.: I claim the arrangement and combination of the obtuse angled part, G, with the tilting box, C F, both parts being adjustable relatively to each other, and to the fixed supporting frame, A, all substantially as described, and for the purposes set forth.

[This is a very convenient miter box, and is capable of operating on timber of any required length. The saw is guided to cut at any angle. A tilting block fixed on a partially rotating center holds the timber to be mitered, and it can be tilted with facility into variously inclined positions, while the stuff to be cut may remain always horizontal.]

PREPARING HUB BLOCKS FOR THE LATHE—Lovett Eames, of Kalamazoo, Mich.: I claim the vertical and stationary hollow auger, H, guide and rest plate, I, with cutters, J, attached, in combination with the rotating arbor, F, and screw clamp, E, attached to the sliding frame, D, the whole being arranged substantially as shown, for the purpose set forth.

[The object of this improvement is to prepare blocks for wheel hubs by boring the timber for a number of blocks at one continuous operation, then sawing them off, ready to be turned into hubs.]

MELODEONS—Wm. Evans, of Lockport, Ill.: I claim the arrangement of the swell to close by a movement upwards or away from the reed tubes, substantially as specified, instead of downwards or towards the reed tubes in the heretofore usual manner, for the purposes specified.

And I also claim the stop, D, against which the swell closes, attached to the reflecting board, so as to be removed therewith to leave the reeds exposed, as described.

[In this melodeon the swell closes by an upward movement, or away from the tubes. By this arrangement of the swell the tone of the instrument is greatly improved, and resembles that of the "open diapason" of the organ. The tone is rich and soft when the swell is closed, and very full, but mellow also, when it is open.]

MAKING WROUGHT NAILS—Smith Gardiner, of New York City: I claim, first, The feeding apparatus constructed substantially in the manner and for the purpose specified.

Second, I also claim projecting the finished nail to the rear of the anvil, to be cut off, as described.

Third, I also claim the eccentric, y, and spring to hold the nail rod, when rapidly brought back to its place.

Fourth, I also claim vibrating the rod under the two hammers, so as to alternately receive a blow on its different sides, as set forth, and by means substantially as described;

Fifth, I also claim the general combination and arrangement of the several parts of the machine for feeding, presenting, swaging and cutting off the finished nail, by which I make a wrought iron nail of any specified pattern.

GUIDING AND CUSHIONING PUPPET VALVES—Joseph Hyde and Wm. Stearns, of Wilmington, Del.: We claim the application to steam engine pump valves of the V-brace, with the piston working into the chamber or cushion, in the precise manner set forth and described, to prevent mashing or bruising of the valves.

CAMP TENTS—Benjamin Hinkley, of Troy, N. Y.: I claim making the rattered frame of the tent in sections hinged together, so that the frame can be folded for convenient carrying, as described, the folding frame being provided with the jointed tie-braces, or equivalent devices, for keeping the sections in place when expanded, as set forth.

CLAY PULVERIZERS—Ira Hersey and James H. Van Riper, of New York City: We claim the combination of the grated cylinder or separator, Q Q, open at its ends, and supported on its outside by the driving wheels, Q Q, with the movable and adjustable beaters, M M, on the shaft, C C, when the same are constructed and arranged for joint operation, substantially as described.

CARRIAGE BRAKES—George Hanck, of Mechanicsburg, Pa.: I do not claim the arranging of a lock on the axle of a wagon, neither do I claim locking the wheel by means of a pin attached to a lever arranged in the axle.

Nor do I claim locking the wheel by means of a sliding clutch, both of said methods being old and objectionable on account of causing the wheel to be stopped suddenly, without allowing it a chance to slide, and thus causing damage to the lock by the breaking off of the stop pin or teeth of the clutch.

But I claim providing the semi-circular locking block D with an extension arm, E, and pivoting it to a bracket of the axle some distance from the point of contact with the hub, and arranging it relatively to the lever F and spring G, substantially as and for the purpose set forth.

[This improvement provides a neat, simple and effective lock for braking up light carriages. The invention consists in placing a long lever on the front part of the hind axle, and arranging a pivoted block between the axle and lever, so that when the power is applied to the lever by a cord, the block will be caused to bear perfectly square upon the inner collar of the hub instead of inclinlingly, as when no intermediate block is used.]

SOLAR LAMP—Joseph Hassell, of Brooklyn, N. Y.: I do not claim separately the elevating or depressing of the wick holder and its wick by turning the outer surrounding tube formed with a helix to act on a spring projecting from the wick holder, and the wick holder being prevented from turning by a pin projecting from its inner periphery, fitting and sliding in a vertical groove formed in the outer surface of the inner wick tube.

I claim making the outer and turning wick tube which surrounds the wick holder with a helix or helices to act on a pin or stud projecting from the said wick holder, and preventing the said wick holder from turning by a feather or feathers, or equivalents therefor, on the outer surface of the inner wick tube, substantially as described in combination with the making of the upper end of the inner and outer wick tubes cylindrical and with unbroken surfaces in contact with the wick as described, the better to keep the upper end of the wick parallel with the upper end of the said wick tubes, and for the further purpose of having the surface of the said tubes where they are in contact or close proximity with the wick to present unbroken cylindrical surfaces as set forth.

And I also claim, in combination with the turning wick tube provided with a helix or helices, substantially as described, the employment of a movable nozzle, substantially as described.

SEWING MACHINES—Daniel Harris, of Boston, Mass.: I claim the mechanism for forming and interlooping the stitches, consisting of the beak, a, the catch x, the plate b, and its projection, k, the spring, h, and the needle, when constructed, arranged and operated together in the manner as set forth.

WHEELWRIGHT'S MACHINE—E. N. Kilpatrick, of Byhalia, Miss.: I claim the combined arrangement of the spoke marking apparatus, cutter frames, gauge rod and hub holders in such relation to each other as to enable the tenons of the spokes to be marked and formed with entire uniformity, and unerring accuracy, substantially as specified.

COAL STOVES—John B. Kohler, of Philadelphia' Pa.: I claim the three cases, D C D, the fire chambers, M M 1 and M 2, and their respective openings, the air chambers N, N 1 and N 2 with their openings, and the partitions q and q 1, when the whole is arranged and constructed, substantially in the manner and for the purpose set forth.

BASIN FAUCET—Wm. C. Marshall, and Horace W. Smith, of Hartford, Conn.: We claim the arrangement, application and combination as herein described, for drawing hot or cold water through one nozzle, in the manner and for the purpose substantially as set forth and described.

MACHINE FOR FELLING TREES—Elliot T. Miller, of Chelsea, Mass.: I claim the vibrating bar, F, with cutter G, attached, constructed as shown, the bar F being pivoted in the sliding collar, E, provided with the pawls h h, and fitted on the rack bar B, which is attached to the tree, I, by means of the brace H, and clamp formed of the screw rods D, passing through the nuts, p, attached to the segments bar, A, and retained in proper position by the bars, f, substantially as described for the purpose set forth.

[A cutter is employed in this machine attached to a vibrating bar, which is pivoted in a sliding collar placed in a rack bar. The latter is attached to the tree to be felled, by a clamp, and the cutter is vibrated by the bar and fed automatically to cut in either direction.]

NAIL MACHINE—E. W. Scott, of Lowell, Mass., and A. M. George, of Nashua, N. H.: We claim forcing the pointing rolls to revolve and advance at the same time to point the nails or spikes, substantially as specified.

HANGING DOORS—Albert W. Morse, of Eaton, N. Y.: I am aware that doors have been suspended upon rollers by means of a standard permanently attached to the door, therefore I make no claim to this.

Nor do I claim the standard roller or any of the parts of themselves,

But I claim giving the roller C an independent motion of the door, thereby allowing the roller to adjust itself to the rail and revolve on it, with its plane parallel with said rail in the manner and for the purposes set forth.

Not intending in these claims to limit myself to the precise arrangement of parts described, but to vary the same at pleasure, while the same ends are attained by means substantially the same.

PORTABLE FENCE—Wm. Morrison, of Carlisle, Pa: I claim confining the panels together, and also to the braces and sill, by means of a single bolt in the manner described.

CONSTRUCTING WATCH AND LOCKET RIMS—Henry A. Phillips, of Providence, R. I.: I do not claim the striking up of the halves of a case for watches or lockets by means of a die and former.

Neither do I claim the making of lockct rims out of single pieces of metal instead of two or more.

Neither do I claim making the same out of sheet metal instead of wire.

But I claim the shaping burnisher, fig. 3, or its equivalent, for the purpose of producing a continuous rim from the same metal upon the halves of watch and locket cases constructed, applied and operated in the manner and on the principle substantially as described.

ROTARY PUMPS—Robert Ramsden, of South Easton, Pa.: I claim the combination of a revolving piston, D, and taper-shaped screw, B, in the manner and for the purpose substantially as described.

[This rotary pump has a tapering screw combined with a scalloped revolving piston, the bearings of the latter being self-adjusting. It operates well, running either fast or slow, and is thus very different in its action from simple screw pumps. It is not liable to become choked with sand or gravel, and it operates with but little friction, and the casing is readily adjusted to enable the piston to work water tight to prevent leakage.]

AUTOMATIC FANS—Lawrence Rebstock and N. Reimel, of Philadelphia, Pa.: I do not claim broadly the driving of revolving fans by clockwork, as such contrivances have long been known and used.

Neither do I claim the revolving of mechanism around a given axis, by placing the mechanism upon movable frames. The rotating domes of observatories, telescope stands, and other species of mechanism are examples of this kind.

But to the best of my knowledge and belief there never has been made a fan driven by clockwork, and arranged as shown, so as to be capable of being readily turned upon an axis, without moving the whole apparatus. The current of air is thus readily directed towards any given point in an apartment. My invention therefore constitutes a new and useful article of manufacture. No apparatus like it has ever before been known or used. Therefore, I claim as a new article of manufacture a ventilating fan constructed as set forth.

[It is not new to operate fans by clockwork, but clock fans have not been made heretofore in such a manner as to change the position of the fan and direct the current of air to any given point in an apartment as is done by this machine. Such self-acting fans are very convenient for warm latitudes. One may be set on the head of a bedstead, and it will keep the air in gentle motion all night.]

SHIELD AND GUIDE FOR CIRCULAR SAWS—G. W. Rodeboy, of Milwaukee, Wis.: I claim, first, Suspending the upper half of a saw, which is arranged to hang over the log to be sawed, a stationary metalic shield for the purpose of supporting the muley-head, and serving as a guard to prevent injury to the operator, substantially as set forth.

Second, The peculiar manner of arranging the circular muley head on the stationary elevated shield, whereby the guides are capable of being adjusted to any position desired, without taking up any portion of the depth of the saw from the collar to the point of the teeth, and are always made to guide the saw just at and above the point of cutting, substantially as and for the purposes set forth.

Third, I claim the springs, n n, when arranged on the rising and falling muley head and relatively to the saw, substantially as and for the purposes set forth.

[This invention provides a perfect guard against the operator having his hands or any part of his body coming in contact with the saw. It also provides an adjustable muley guide, whereby the saw is directed, just before the cut, at the point of contact with the log, and a full depth of saw cut is obtained in sawing large logs.]

MAKING LAMP BLACK—J. A. Roth, of Philadelphia, Pa.: My claim consists in supplying lamp black ovens or the flues connected therewith with air pipes, substantially as described

And I also claim the combination of the discharging flue or pipe, with a tank or reservoir filled with water, for the purpose substantially as described.

ADJUSTING CIRCULAR SAWS OBLIQUELY TO THEIR SHAFTS—G. R. Scriven, of Philadelphia, Pa. Antedated May 18, 1857: I do not claim the use of oblique circular saws for cutting grooves, as such are well known.

Neither do I claim the employment of two beveled washers between a fixed collar on the spindle and the circular saw, as that mode of adjustment presents disadvantages as set forth.

But I claim, first, The combination of the stationary beveled collar on the spindle with the single loose collar, having one beveled face, and the sliding pin connecting said loose collar with the saw, the arrangement and operation being as set forth.

Second, The plane-faced collar, f, fitting the spindle in such a manner as to be easily inclined at an angle with the spindle between two circular saws, b and n, for cutting tongues and wide grooves in lumber as described.

Third, The sliding pin, h, in the collar g, and sliding through the same into the fixed collar b, or through the saws n, and into the collar f (fig. 2) as the case may be, for the purposes herein stated.

CARRIAGE WHEEL—J. D. Sarven, of Columbia, Tenn.: I claim the improvement in carriage wheels, which consists in the employment of flanged metallic collars, as described, or other equivalent devices, in combination with a wooden hub, and these in combination with the arrangement of the spokes at the hub as described, by which means strength and support is given both to the hub and to the spokes at or near the hub, and by which means I am enabled to use any desired number of spokes in each wheel, thereby preventing indentations being made in the rim of wheel between the spokes, and by which means I am also enabled to use, a much smaller hub than those in general use, and at the same time retain a sufficient degree of strength at the hub, the whole being constructed and arranged, substantially as and for the purposes set forth.

I also claim the flanged collars as described or other equivalent devices when used in combination with a wooden hub, if the spokes are arranged as set forth or in any other manner.

HOB FOR CUTTING SCREW CHASERS—G. C. Schneider, of Washington, D. C.: I claim the hob for cutting the threads of screw chasers constructed in the manner described.

PAPERFILE—D. A. Stiles, of West Meriden, Conn.: I distinctly disclaim the use of springs for holding down the follower.

I also disclaim all and every portion of my device which is seen in Collard's patent aforesaid, or in any other bill holder.

I likewise disclaim the broad use of spring catches for sustaining objects; but the combination of a double self-acting spring catch, D D, with the top or follower, C, of a bill holder in the manner described is to the best of my knowledge and belief a new combination, and is of importance and value so far as relates to that kind of instruments mentioned.

I claim the combination of the double self-acting spring catch, D D, with the top or follower, C, as set forth.

[A double self-acting spring catch is combined with the upper surface of the top of the "bill holder," whereby

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the latter is retained in position at any point to which it is raised. Common bill-holders press down upon the fingers, and thus hinder an examination of their contents.]

MOP HEAD—E. P. Thompson, of Worcester, Mass.: I do not claim a mop holder or clamp having a movable jaw operated by or secured in place by a screw or a ring and hook.

But I claim the improved self-acting mop-holder, made substantially as described, viz., with a spring a, and two bent legs or bars, b b' c c', applied together and operating in manner and in combination with a socket d, in the handle A, substantially as specified.

STUMP EXTRACTOR—Peter Traxler, of Scottsburg, N. Y.: I claim the combination of the three bars, a b c, with the slotted beam, B, and lever l, said beam B, being free to revolve in the manner described.

I am aware of the construction of the lever of Lagrousse and several modifications thereof, and do not claim the reciprocating lever thus used, but simply my combination substantially as set forth.

MANUFACTURE OF BOOTS—James Scrimgeour, of Brooklyn, N. Y.: I disclaim any form substantially like that described in the patent of Chilcott & Snell, before referred to.

But I claim the cutting out or otherwise forming a piece of leather or other material to the shape substantially as described and represented in fig 1, and the folding of the same as described and illustrated in figs. 2 and 3, to produce the "upper" of a boot, as fully set forth.

[This improvement relates to cutting out the uppers of boots in such a manner that they do not require to be crimped The seams or parts that have to be closed are brought together with a lap, and the closing operation can be executed with facility by a sewing machine.]

STEERING APPARATUS FOR SHIPS—Phineas Smith, of Patchogue, N. Y.: I do not claim the individual parts of the described apparatus,

But I claim the arrangement of the movable cogs, d d, plate c, pinion e, and ropes as set forth and shown in the drawings for operating the tiller by the steering wheel, A.

ROAD SCRAPER—Hiram Van Pelt, of Bath, N. Y: I am aware that a scraper has been made to revolve upon pivots placed within a suitable frame, and therefore I do not claim such.

But I do claim the alternate arrangement of the sco ps, I I, in combination with the draft rods, D D, substantially in the manner and for the purpose set forth.

GAS BURNERS—John C. Walsh, of Lockport, N. Y.: I am aware many devices have been used for the purpose of retarding the flow of gas through a burner, such as deflectors or circuitous passages. I lay no claim to these things.

But I do claim the arrangement within the burner of two or more hollow pillars, d and g, extending up into the chambers of the burner with holes, K, made obliquely into the upper end of said pillars as represented, for producing counter currents of gas as it flows through the burner to break its force and regulate the supply of gas to the tip of the burner, for the purposes mentioned.

WRENCH—Edward J. Worcester, of Worcester, Mass.: I do not claim the application of a screw and rack to the movable jaw and the stock of a wrench, in order to produce the required movements of the movable jaw with respect to the stationary jaw extended from the stock.

Nor do I claim a wrench having its movable jaw affixed to a tenon or slide made to work through a mortise in the other jaw, and to be clamped in position by the handle, as the same is set forth in the patent of Orin O. Witherell, dated December, 1856.

I claim my adjustable fork jaw wrench as made with its jaws arranged and applied to its handle as described, and with a rack and rotary screw arranged in the handle and applied to the slide of the movable jaw as specified.

SETTING TIRES ON WHEELS—John H. Williams, of Pleasant Hill, O.: I claim hanging the frame, to which the wheel is secured, to a revolving shaft, so that the wheel may be turned up into a horizontal position for the facility of working at it, and then into a vertical position to bring the perimeter of the wheel into the water trough, substantially in the manner and for the purpose as described.

DAMPER REGULATORS FOR STEAM BOILERS—Patk. White, of Brooklyn, N Y; I claim securing the ends of the flexible tube by the clamps, D D, and metallic plugs, K M, substantially as described.

NUT MACHINE—Samuel H. Whittaker, of Cincinnati, O.: I do not claim the employment of two punches entering the nut or washer from opposite sides, as I am aware that such a contrivance is described in the patent of Richard Coles, such punches, however, being parallel sided and arranged in line and operating differently to my taper punch and mandrel.

But I claim, first, the employment of a taper punch, p, a hollow plunger, L, or its equivalent, and a taper pointed mandrel, J, combined and arranged to operate substantially as set forth.

Second, The combination of the hollow sleeve, K, and the plunger and cutter, L, with the forming rollers, C C M, substantially as described for the purpose of carrying the nut or washer blanks to and from the said roller.

The holes of nuts and washers are made with this machine without waste of cores or burrs. A heated strip of iron of proper width is fed through an opening in the frame of the machine, and the operations of punching in (not cutting out) the hole, cutting off the nut, and finishing the hole and outside, are all performed automatically, and the nuts are discharged in a very perfect condition

MACHINES FOR FOLDING PAPER—James F. Weeks, of Columbus, O,: I do not claim the folding of paper by passing the sheets between revolving rollers.

Neither do I claim the arrangement of the rollers in the above described form, as they can easily be arranged to produce any other form of fold desired.

But I claim the manner of operating the feed roller and folders by means of friction rollers or their equivalents revolving upon the plane of a wheel or wheels (N figure 6) striking against fingers or tripping arms or their equivalents, keyed upon the rock shafts to which the feed roller and folders are attached substantially in the manner described, in combination with spiral springs upon said rock shafts, to return the feed roller and folders to their places, substantially in the manner specified, the whole tending to facilitate the rapid, easy and certain operation of the machine.

I also claim making slots in said wheel or wheels in which to fasten said friction rollers or their equivalents at any desired point by means of the thimble, bolt and nut constituting the movable stud, substantially in the manner specified, so that said friction rollers may be moved forwards or backwards to cause the motion of said rock shafts to be sooner or later, as may be desired, in combination with the rock shaft, spiral springs, rollers and tapes, the whole operating substantially in the manner described for the purpose of forming any desired folds in paper, using any number of said slotted wheels, friction rollers, rock shafts, spiral springs, rollers, and tapes, or their equivalents, in combination, necessary for the purpose of producing any number or form of fold required.

CHEESE HOOPS—C. P. S. Wardwell, of Lake Village, N. H.: I claim the combination of the hasps, D, having a bridge or bar, K, at the outer end of its slot arranged as described, with the oblong button, e, the two operating together, substantially in the manner and for the purpose specified.

AUTOMATIC SAW MILL BLOCKS—Hiram Wells, of Florence, Mass.: I claim the devices such as are described, or their equivalents, so constructed as to traverse the log towards the saw simultaneously on each head block, and set it automatically, or permit the workman to set the log on either head block, or on all at the same time. by the lever, g, when put into gear with the rack, k, as described

METHOD OF INCASING HYDRANTS—Wm. Bramwell of New York City, (assignor to Samuel P. Ayres, of New Rochelle, N. Y.,): I claim the casing or pipe, C, with its seat, e, and elastic washer, f, in combination with the hydrant pipes, g, and screws, p p, substantially in the manner and for the purposes specified.

VALVULAR ARRANGEMENT FOR BASIN, ETC., COCKS—Edward G. Bunham, (assignor to himself and Henry A. Chapin,) of Springfield, Mass.: I do not claim operating a valve by means of a cam, as this is found in various faucets.

Nor do I claim a faucet or basin cock as made with a turning bib or nozzle, and a tubular stem having a rotary valve working against a concentric seat, as such is liable to leakage.

But I claim the described new manufacture of basin cock or faucet, as made with a turning bib or nozzle, a sliding valve, and a tubular stem operated by means substantially as described.

FIRE GRATES, OR LINING OF FIRE POTS—Daniel H. Dean, of Lowell, (assignor to Wm. T. Coggeshall, of Fall River,) Mass.: I claim arranging the inner surface of each ring of the fire pot cylindrically or vertically, the edges of the rings inclining inwards in such manner as to bring the upper edge of one ring on or about on a level with the lower edge of the ring directly over it as described, whereby advantages such as are stated are gained.

TONGUEING AND GROOVING HAND PLANE—Porter A. Gladwin, (assignor to himself and Thos. F. Caldicott,) of Boston, Mass.: I do not claim the combination of tongueing and grooving cutters, upright and horizontal guides in one stock, wherein the tongueing and grooving cutters are arranged to slant in opposite directions.

But I claim the tongueing and grooving cutter or cutters in a single threat and to slant in one direction, in combination with arranging the vertical guides, so that one shall stand below the other, and the horizontal tongue guide be arranged between as specified.

FORGING HORSE SHOE NAILS—Robert Cook, (assignor to himself and Samuel Norton,) of South Abington, Mass.: I claim arranging each striker in a separate guide lever, and operating such striker by a spring and such guide lever, when the latter is actuated by means substantially as described.

I also claim combining with the pitman, M, and the lever, L, carrying the feeder, a catch lever, N, shoulder, w, and spring catch, O, whereby the said feeder may be moved and held up to the cutters and set free therefrom, as circumstances may require.

POWER PRINTING PRESSES—Jedediah Morse, of Canton, (assignor to the S. P. Ruggles Power Press Manufacturing Co., of Boston,) Mass.: I claim the combination and arrangement of mechanism or devices for supporting the sheet of paper over the carrier or friskett carriage, and guiding and presenting it to the discharging apparatus, such devices consisting of the cords, n2 n2, the rollers l2 m2, the drum, o2, cord, p2, and the barrel or pulley, q2, provided with a spring or its equivalent as described.

I also claim the combination of the cam, u, and stud, v, with the rocker toggle and its operating cam, the same being for the purpose as specified.

I also claim the combination for regulating the rotary motion of the ink fountain rollers, the same consisting of the adjustable stop lever m3, the connecting rod, h3, the cam, c5, the lever, f5, the weighted plate, K3, and the pawl, l5, and the internal ratchet, s5, constructed and applied together substantially as specified.

I also claim combining with the pile platform and the fly, a mechanism substantially as described, which by the reciprocating movements of the fly, shall lower the platform in correspondence with the increase of thickness of the pile, such mechanism being the cam on the fly shaft, the pawl thereof and the train of gears and racks applied and operating as specified

I also claim the mechanism or combination for imparting to the ink cylinder, h, endwise motions as described, the same consisting of the grooved pinion or gear, o, and the inclined gear, p, constructed, arranged, and applied together, so as to operate substantially as specified.

PEGGING BOOTS AND SHOES—Benjamin F. Sturtevant, (assignor to himself and Elmer Townsend,) of Boston, Mass.: I claim in combination with the feeder wheel, R, and its rotary mechanism, a mechanism for imparting to said feeder wheel, and the last reciprocating intermittent endwise movements whereby the pegging of two ranges of pegs may be effected as described.

I do not claim a toothed or corrugated feeding wheel, nor one made with a series of holes for the pegs to pass through or into.

But I claim constructing the feed wheel, R, with two series of radial holes arranged in it as specified.

I also claim the stop lever, t'', and its locking slide, h'', in combination with the peg wood feeding mechanism, and made to operate therewith, substantially as explained.

I do not claim a tubular peg carrier, provided with a cutter, as shown in the patent granted to A. C. Gallaher, August 16, 1855.

I also claim the tubular peg carrier, when provided with a cutter for separating the peg from the peg wood, and when arranged and made to operate with the peg wood feeder and the feeder, R, substantially as specified.

I also claim the combination of mechanism for producing a reciprocating intermittent endwise movement of the feeder wheel, R, the same consisting of the slider, u, the stud, v, the groove, w, the spring, S, the pin, c', the inclined cam, d', the pin, e', the tripping clutch, f', the lever, g', and the slide rest, o', the whole being applied together, substantially as specified.

I also claim combining with the mechanism for producing the reciprocating endwise movement of the feeder, R, a weighted arm or its equivalent applied to the pegging jack, substantially as above specified, whereby the shoe and last are maintained in close contact with the feeder, and permitted to move in correspondence therewith, substantially as set forth.

I also claim the method of effecting the feeding of the peg wood, that is by the slider, M, of the peg carrier, the lever, b2, the serrated feeder, Z', and the spring, d2, operating together as specified.

CARPET BAGS—Joseph Zepfel, (assignor to himself and John B. Radley,) of New York City: I claim attaching the half pieces of the divided bottom to the lower corners of the respective frames, at right angles or nearly so to said frames, thereby said divided bottom and frames support the flexible material of which the bag is composed, whether the same is open or shut, as specified.

BRICK PRESSES—R. R. Harbour, of Cskaloosa, Iowa: I claim the employment in combination with the wheel, L, of the two sets of levers, H H' and K K', arranged eccentrically within a circle, and on a revolving circle plate, and connected with the tops of the molds of said plate, and with the followers of the same, substantially as and for the purpose set forth.

In this machine two sets of levers are used with a revolving circle plate. They are employed for opening and closing the top of the molds, and for exerting pressure on the "followers" of the molds. These levers are formed to act on the principle of a wedge, and to exert a gradually increasing pressure. One set have their fulcra slightly in advance of the other, so that when one set has finished acting, the other set has commenced operating. It is a very ingenious and compact brick press.

RE-ISSUES.

CAST IRON CAR WHEEL—Anson Atwood, of Troy, N. Y. Patented May 15, 1847: I claim the connecting of the rim of the wheel with the hub in cast iron car wheels by means of two curved plates, starting from near the ends of the hub, and joining at a part of the distance between it and the rim, thus forming a hollow ring or arch around the hub, and joining said ring with the rim by a single plate or its equivalents.

SHIPS BLOCKS—Cornelia Waterman, administratrix of Stephen Waterman, deceased, and Isaac D. Russell, of New York City. Patented January 31, 1844: We claim passing the straps through grooves in the inner faces of the cheeks of the blocks as described.

DESIGNS.

BUSTS OF NAPOLEON BONAPARTE—Thos. Ball, of Boston, Mass.

ADDITIONAL IMPROVEMENTS.

FARM GATE—Chas. N. Code, of Pleasant Valley, N. Y. Patented May 13, 1856: I claim the arrangement and combination of the levers, B and C, with the ropes or chains, F F, and platform, A A, they forming a self-acting or balance gate, as fully set forth.

SPRING BED BOTTOMS—Hiram Tucker, of Cambridgeport, Mass. Patented July 3, 1855: I claim arranging and combining with such bars and springs, substantially as specified, flexible bands or strips, g g, or analogous devices, so that the several bars and springs may be connected and made to operate together, substantially as specified.

To Prevent Scale in Boilers.—Native Mother of Pearl.

MESSRS. EDITORS—I have noticed various remarks in your paper on the subject of incrustation of boilers from the use of limestone water. I was some years ago engaged in an establishment where steam power was used, and frequently spent leisure hours in conversation with the old engineer. He told me the best, most simple, and at the same time the most safe remedy, was the application of a few pieces of shell-bark hickory wood. The virtue, it appears, is in the inner bark, which could be easily taken off and thrown in the boiler without the wood.

Is there any method by which the pearl part of the muscle shell can be softened, or in any way managed, otherwise than sawing, so that it can be worked to advantage?

Our western waters abound with muscle shells from six to eight inches in length, and from 1-4 to 5-8 inch thickness, and some of it as firm as most of the pearl now used. I have frequently examined them, and wondered that some of our geniuses could not contrive some method to bring them into market. Steamboats could be loaded on some of the tributaries of the Ohio with this shell, that could be used for thousands of different purposes; and I have no doubt that in time they will be made useful and profitable.

T. W. POWELL.

Louisville, Ky., June, 1857.

[The effect is due to the tannic acid in the bark, and is analogous to that produced by the use, in the same manner, of oak or mahogany sawdust. All such materials, however, only keep the lime in suspension until the water can be blown off. It is better to purify the water by heating and allowing it to deposit its earthy matter, as is practiced in Wiessenborn's patent, see page 113, Vol. 11, before allowing it to enter the boiler.

Pearl shells cannot be softened without injuring their beautiful lustre.

An Electric Locomotive.

The Detroit *Free Press* relates the following rather tough story:—

"A locomotive was being moved from the manufactory to the Central depot, in that city, and had arrived in the middle of the street, when suddenly all hands dropped the bars which they were moving the machine, and fell back in amazement. Resuming them at the order of the man in charge, they applied them again to the wheels, and again fell back paralyzed the instant they touched the iron. The director of the job caught up one of the bars, and making a savage thrust, planted it under a wheel, preparatory to giving a huge lift. No sooner had it touched, however, than he saw it fall from his grasp to the ground, as it had done in every case before. Such singular occurrences excited attention, and an examination was made as to the cause, when it was found that the locomotive, in passing under the telegraph line, had come in contact with a broken wire that hung sufficiently low to reach it. The whole mass of iron comprising the locomotive had thus become charged with electricity, which had communicated itself to the bars that the men held in their hands, and caused the effect above described. The wire was then removed, and the difficulty obviated in a moment."

Removing and Preventing Rust.

Some persons employ an acid to remove rust from knives; this should never be done under any circumstances. Nothing surpasses rotten stone and oil for scouring knives and forks. To prevent stoves and grates from rusting during summer if placed in damp situations, give them a thin coat of lard and resin melted together, in the proportions of three parts of the former to one of the latter.

Notes on Science and Foreign Inventions.

Parian Statuary.—Those who visited the New York Crystal Palace in 1853 will not readily forget the beautiful display of figures made of a composition called "Parian marble." They were arranged in the South Gallery, and were manufactured at Stoke-upon-Trent, England, in the factory of Alderman Copeland, of London. Such figures are also common in the windows of some of our stores, and are generally of a diminutive size, but of a soft and agreeable tint, resembling that of ancient marble statues. "Parian" is a kind of porcelain prepared with great care, and from the difficulty of baking it, a great number of the figures come out of the kilns as *waste*. Owing to this feature in its character, it has hitherto been impossible to execute large figures of such material; but this difficulty, we understand, has been overcome, or rather removed, by the discovery of a new material called "porcelain ivory," which is of equal beauty with parian in point of tint, and stands the action of fire without distortion. Alderman Copeland has recently opened a large new show room in his manufactory, in which he displays figures of life size made of this material. Parian figures sell at very high prices, and we hope this new discovery will be the means of reducing the price of such beautiful works of art.

Gas Light in Railroad Cars—A "first class" carriage on the Great Northern Railway, England, has been fitted with a gas meter, capable of holding sufficient gas for eight hours' consumption with three burners. The experiments with it are stated to have been perfectly successful. The gas meter is fitted into the bottom of the carriage, and is filled by a flexible tube from any of the main pipes at the railroad stations.

Navigating the Shallow Rivers of India.—The Manchester Chamber of Commerce has petitioned Lord Palmerston in very forcible terms to carry out a system of steam navigation for the shallow internal rivers of India, "proposed," it is stated, "by J. Bourne, C. E." The main difficulty to the navigation of these rivers by steam is the low state of their waters at certain seasons every year. The plan proposed by Mr. Bourne is "to employ steamers of shallow draught, and divide the cargoes among a number of shallow barges to be towed by the steamers." This is an old American plan, which any of the Manchester merchants can witness any day during the summer season by a trip to this city, thence up the Hudson river to Albany.

A Great Blast.—In a quarry at Holyhead, not far from Liverpool, where supplies of stone are being obtained for a large breakwater, 2000 pounds of powder were recently exploded simultaneously, by a galvanic battery consisting of forty-eight cups. It was situated 750 feet from the chamber where the powder was tamped. The explosion detached 160,000 tuns of the rock, and shook the whole neighborhood like an earthquake.

Steam Cultivation.—Five different methods of steam plowing are now in the course of trial this season to England, and we hope the question of its economy in comparison with animal power will soon be fairly solved. It is not now a question of practibility, for steam plows do operate well, but hitherto their expense has been more in plowing per acre than by horses. The five systems embrace the traction engine, the stationary engine and stationary windlass, stationary engine and traveling windlass, rotary cultivator and a digging and forking steam plow. With regard to the traction engine, (which moves over the field dragging the plow,) the London *Engineer* says: "A vast amount of opposition has been advanced to the traveling of portable engines over arable land, but having got them in the field, apparently doing their work as economically as any of the other systems, and even more so, the more philosophical course is to leave the great practical questions at issue to be settled at the bar of experiment." This is a sensible advice. The traction system will yet be the one adopted, because it is the most simple.

A Great Railroad Enterprise.—A line of railroad is projected through Turkey to pass through the valley of the Euphrates, thence to India, which will be 3000 miles long. When completed, passengers can get into a train on the shore of the Mediterranean, and travel without a change of cars to Calcutta.

A great trial of agricultural machines took place at Vienna on the 11th of last month. We have not received full particulars, but our British exchanges state that the first prize medal for thrashing machines was awarded to Messrs. Davy, of Sheffield, England.

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New Inventions.

The Oreide of Gold.

We have received some samples of the above named material, described on page 308, this Vol. They were sent to us by Messrs. Holmes, Elton, Turrell & Co., of Waterbury, Conn., and No. 166 Fulton st., this city, who manufacture this alloy. In brilliancy and beauty of color it resembles gold. Its ductility is remarkable; some specimens are in the leaf form, as thin as some forms of gold employed for gilding, and they may readily be mistaken for the genuine metal. It is the most successful imitation of gold in color and malleable qualities we have ever seen.

Improved Brick Press.

There are two kinds of brick—the "sun dried" and "burnt." The latter is the only sort capable of exposure in our climate, therefore no other kind is manufactured. They are composed of small slabs of tempered clay molded in presses, and afterwards exposed to a high heat—burned hard—in kilns, and are in reality, artificial stones, very convenient for exportation, and for handling by masons in the erection of buildings. They have been employed from the earliest times as substantial material for architectural structures, and always will be so employed, we believe, because they are fire-proof and weather-proof, and can be manufactured wherever clay, sand, water and fuel can be obtained.

At one period, and that not very distant, bricks were entirely molded by hand, involving the severest drudgery of human labor within our knowledge. Happily, the inventive genius of man, which has in so many cases proven beneficial in its results, has brought to the aid of human bone and sinew, those of iron and steel, in the form of brick presses. Several of these have been illustrated in our columns, and the accompanying engravings represent another to be added to the list. A patent was issued for this brick machine to Samuel Lillie, Jr., on the 17th of February last.

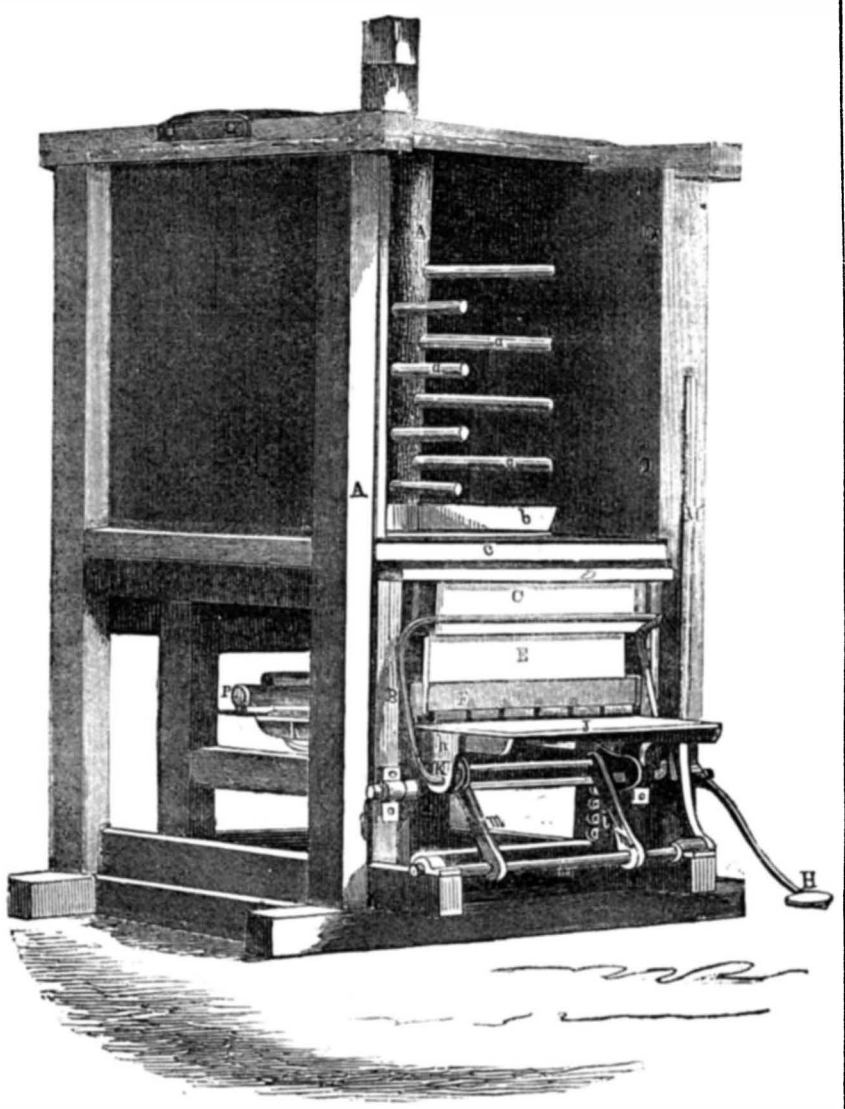
Fig. 1 is a perspective view, showing the interior of the tempering or pug mill, and fig. 2 is a vertical section of the entire machine.

A represents the frame of the press. The wet clay and sand employed to make the bricks are placed in the pug mill, which has a vertical revolving shaft, A′, extending through its center, on which are beaters, *a a*. There are inclined scrapers, *b b*, on the lower end of the shaft; their lower edges are set very close to the bottom, *c*, of the pug mill, in which bottom there is an oblong opening, *d*. Within the framing, A, there is a minor frame, B, which has a rectangular box, C, fitted in its upper part; this box has an opening, *f*, in its top, corresponding with that in the bottom, *c*, of the pug mill; and there is a slide, D, in it, which opens and shuts off communication between the pug mill and box; it also contracts the passage as may be required. E is another box fitted to work freely up and down in the box, C. The upper end of box E is open, but in its bottom there is fitted a grating, F, the spaces of which correspond in width with the molds. A parallel bar, *h*, is attached to a plate secured to the lower end of box, E, at each side, and a vertical rack is united to each bar. A toothed sector, *j*, fitted on a transverse shaft, gears into each rack; the treddle, H, operates this shaft, and the sectors. There is a platform, I, secured to the back part of bars, *h*, and another platform, J, pivoted to and between these bars in front. R is a transverse roller in this platform. The front ends of bars, *h*, rest upon eccentrics, L, which are attached to the vibrating shaft of the swinging arms, K. There is a transverse shaft, O, in the lower part of the frame, B; at each side of it there is a link attached to a rod, on the back end of which there is a cross head, P, resting on the back platform, I. These are the component and relative parts of this press.

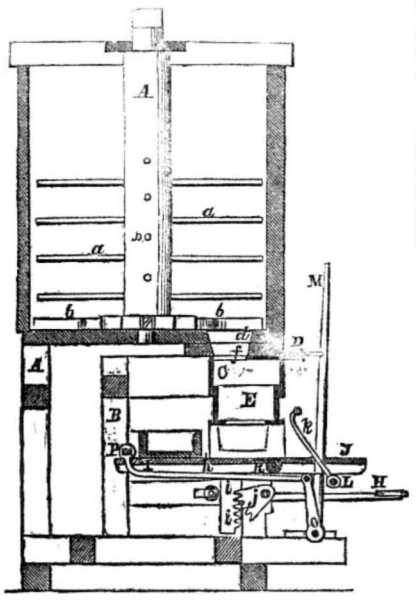
Operation.—Supposing the clay in the pug mill to have been properly tempered and worked by the beaters, *a a*, and ready for molding, the slide, D, is drawn out, to open communication between the pug mill and the boxes, and box, C, is filled with clay. An empty mold box is now shown on the back platform, and a filled mold in dotted lines under the grating, F, of box, E. The operator now draws down lever M, which by the link O, and its side rods, draws forward the cross head, P, which pushes the empty mold before it, and it in turn pushes out the full mold box on the front platform, J, and is then taken away.

The empty mold is now ready to be filled; by pressing with his foot upon treddle H, the operator, through sectors, *i*, elevates the

LILLIE'S BRICK PRESS.



racks, *i*, forcing the empty mold and box, E, upwards into box C. The mold box is thus filled: the clay being forced through the grate, F, into the several molds in one box, the box E acting as a plunger. When pressure is removed from the treddle, H, the box, molds, and platform, descend by their own gravity. The lever, M, is then raised to the position shown, and the same operations repeat-



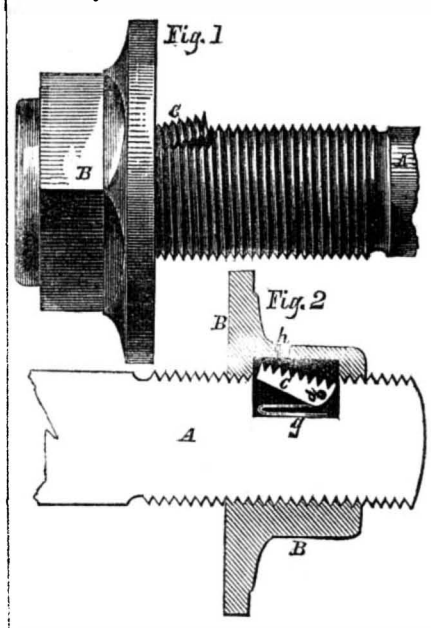
ed continuously. The front platform, J, being pivoted, if stones should get into the molds with the clay, and project above their upper surface, this platform can be lowered to allow the molds to be discharged.

This brick press is simple in its construction, it operates well, we are told, is not liable to get out of order, and can be worked with great ease. It is very compact, and peculiarly adapted for small brick yards, where it would be too expensive to employ steam or animal power to operate it.

For more information address the patentee Samuel Lillie, Jr., Fort Wayne, Ind.

Williams' Axle for Carriages.

Many inventions have been brought forward, and a considerable variety are at this moment in use, for securing the wheels of carriages upon axles in such manner as to be absolutely reliable under all circumstances.



The incessant action to which such fastenings are exposed, the necessary looseness to allow of the revolution and a slight end play of the wheels, and the serious consequences liable to accrue from a sudden loss of a wheel in rapid traveling, gives great importance to the subject, and we take pleasure in giving publicity to the ingenious device under consideration as one entitled to especial attention

Figure 1 is an exterior view, and figure 2 a section of the extremity of an axle constructed according to this invention. A is the axle end, B the ordinary stout nut, with a broad flange attached to give a proper bearing against the wheel. A rectangular cavity is made in the axle, as represented, in which cavity is hung a lever, C, mounted on the pin *d*, and impelled outward by the spring *g*. The exterior face of this lever is formed with threads, so that when forced inward in opposition to the tension of the spring, *g*, it becomes a portion of the screw. At a proper point on the interior of the nut, a corresponding rectangular cavity is also formed as represented, so that when the nut is turned to a sufficient extent upon the axle the lever springs outward, and as the cavity is but little wider than C, the nut is firmly held in a manner entirely unaffected by any strain or jarring motion. When it is desired to remove the nut, any slender metallic point introduced through the hole, *h*, and pressed against C, drives it back to its first position, and allows the nut to be removed. Once started, the presence of the nut keeps the lever, C, down until the operation is completed, but until *g* is compressed by some object introduced through *h*, any force applied to turn the nut must be sufficient absolutely to shear off C, or it will produce no effect. It will be seen that the chances of accidentally releasing it are as slight as can well be imagined. The parts thus protected are also quite secure against both violence and dust.

The invention is not necessarily confined to the employment designated, as there are obviously many other situations to which it is well applicable. By prolonging the cavity in the nut, it may be set in various positions at will on the shaft to compensate for any wear either of the wheel-box, or of the face of the nut-flange. It is simply necessary, when so used, to depress the lever *c*, by introducing the point at *h* at each revolution. The nut by this means may be adjusted at will, but not to an extent less than a single revolution of the screw. A patent was granted for this invention May 26, 1857.

Further information may be obtained by applying to the inventor, Mr. Thomas W. Williams, No. 5 Forrest place, Philadelphia, or to Mr. Henry T. Hoyt, of the same city, who are assignees of the patentee.

Agricultural Machines.

MESSRS. EDITORS—Very true, you have done a great deal to introduce and recommend good agricultural implements. But if draining be the basis of good farming, as it is nineteen times in twenty, you have been building from the top to the bottom. Have a good—cheap if you can, but at all events *good*—ditching machine. That is now the agricultural want of this period. R.

Richmond, Va., June, 1857.

[Our correspondent refers to our recent article on agricultural machines, on page 293. We must inform him that something has been done by us in the ditching machine line, as well as in every other line of agricultural machinery.

On page 12, Vol. 8, SCIENTIFIC AMERICAN, he will find the illustration of such a machine, and one on page 260, this Vol. If none of these possess the qualities desired by our correspondent—who is deeply interested in agricultural improvements—we call upon our inventors to supply the want.

Phosphoresence of Insects.

The distinguished English chemist, Thornton E. Herepath, has been taking advantage of a recent trip to South America to collect and examine fire flies, in order to get at the secret of their luminosity. The commonly received opinion in regard to the source of the light emitted by insects, is that it is due to the slow combustion of phosphorous, resembling that produced by gently rubbing a match with the fingers. Mr. Herepath denies this, however, as he was unable, on the application of the most delicate tests, to detect the smallest trace of phosphorus in the bodies of these curious little creatures. His opinion is that the light is caused by the burni gnof a peculiar compound of carbon and hydrogen, in a special gland.

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Scientific American.

NEW YORK, JUNE 20, 1857.

The Electric Telegraph.

The inventions of olden times, useful and beautiful though many of them were—such as the telescope, chronometer and magnet—dwindle into insignificance beside those of our day. The steam engine, with its vast application to every species of labor, locomotion, and navigation, has changed the social habits of life; and the electric telegraph, by transmitting messages from place to place on lightning's wings, has given to man transcendent powers over space and time. The latter invention is among the grandest achievements of science, skill and enterprise the world has ever seen. The rapidity of its application for the purpose of conveying intelligence seems more like a miracle than the efforts of men. It is only thirteen years this month since the first telegraphic line was erected on this continent, viz., that between Washington and Baltimore, forty miles long; now, we have been credibly informed. there are between forty and fifty thousand miles in operation. Almost within the same period, twenty-six thousand miles of wires have been constructed in Great Britain, and all Europe has been interlaced with electric cords. They pass over the Alps and the Pyrenees; under the waters of the North Sea and the Mediterranean, and gigantic preparations are now being made to enable the Old and New Worlds to hold conversation together through the waters of the Great Atlantic.

Electricity had been sent along wires several miles in length in the days of Franklin, and the possibility of applying it to telegraphic purposes had been suggested as early as 1753, more than a century ago. It was not, however, until very recently, that the inventive genius of man had devised and constructed a machine to harness the electric fluid, and render it capable of speaking in public. The first electric telegraph employed publicly in England operated by signals; the American telegraph records its messages, and is thus superior to the visual telegraph which it has effectually superseded. Three kinds of recording telegraphs have been brought into use; that of Professor Morse, which mechanically records its messages in dots, dashes and spaces, representing letters; that of Bain, which records chemically its messages in the same kind of characters, and that of R. E. House, which prints its messages in the letters of the common alphabet. The chemical telegraph, although the most simple and capable of being operated with the least amount of battery, is liable to make continuous lines instead of dots and dashes, especially during electrical disturbances of the atmosphere. The "Morse" telegraph is the one in general use, because it is so simple, and can be operated with so much less battery power than the very ingenious, but complex, printing telegraph. But were the printing telegraph simplified in its construction, and more perfect in its operations, it appears to us that it would be preferred, for it gives out its messages just as they are received. In the *character telegraph* of Professor Morse, two dots may be run together and form a dash, and thus make a mistake, and again in the transcribing of the messages mistakes are also liable to be made. It is, however, troublesome to keep the common printing telegraph in perfect register, and unless the machine at a receiving station is in perfect register with the keys at the transmitting station, it will print wrong messages. This frequently occurs. Were a remedy provided for its rapid and easy register, it would be a great improvement.

A few days since, we witnessed in operation a new printing telegraph, designed by E. F. Barnes, this city, which provides a remedy for this evil. The type wheel has not a continuous rotary but a vibrating motion, and after each letter is printed it returns back to the point where it started. The letters on the type wheel are arranged in the order in which they occur oftenest in telegraphing, by which arrangement an average of less than seven vibrations, or one-fourth the circumference of the type wheel is necessary to the attainment of each letter, instead of fourteen vibrations or one half the circumference of the wheel, as is the case in all printing instruments where the type wheel makes continuous revolutions. The key board, or transmitting portion of the apparatus, is exceedingly simple; an arm attached to the "circuit-breaker" retreats to a given starting point after the completion of each letter, making the "circuit-breaker" constantly self-adjustable.

In this machine there is a *mutator* for breaking and closing the local circuit, which has a permanent steel U magnet for an armature to the electro magnet, instead of the iron armature in common use. It is very constant in its action during electrical disturbances of the atmosphere, and will act when the soft iron armature is rendered useless. Two of these telegraphs have been constructed in the machine shop of Reeves & Co., Canal street, this city. Simplicity is one great object in the attainment of perfection in machinery. This printing telegraph is very simple in comparison with those now in use, and it can be operated without any difficulty by a very inexperienced person after a few lessons.

A machine of liberal proportions has been constructed in this city, for the purpose of being worked by a steam engine, to generate a magneto-electric current by the revolution of permanent magnets in proximity to insulated coils; and it has been suggested that this would be the best method of operating the Atlantic Telegraph, instead of using immense batteries to generate sufficient galvanism. We have always considered that the generation of an electric current by the magneto-electric machine, for telegraphic purposes, was similar in its character to the French invention for generating steam to propel engines, by friction, in place of the consumption of coal. For such an extent of line as the Atlantic cable, three thousand miles long, it may prove to be the best method, although we are very skeptical on the subject. But as electric apparatus of all kinds is attracting much public attention at present, we hope that this, as well as every other new electric machine, will receive a fair test of its qualities. This is the only true method to progress and improve.

Inspectors of Steamboats.

Among the seekers of offices at Washington, we have been informed that not a few are applying for those of steamboat inspectors, created under the act of Congress of 1852. The fact of these applications being made at this time, would indicate that the applicants are laboring under the impression that these offices are of a political character, and subject to change with every new administration, in the same manner as post offices, custom house offices, &c. But such was not the intention of Congress, as was shown by the debates on the bill when before the Senate in July 1852, when all parties conceded the propriety of keeping the offices of inspectors clear of political influence. And on this principle the appointments have heretofore been made—qualification alone being the criterion for such offices. No person who will consider the object for which this law was passed can come to any other conclusion, than that if the law is to accomplish its objects, an inspector who does his duty properly must not be subject to lose his office on mere political grounds, or on the rotation principle.

The language of the law is, that the President, with the advice of the Senate, "shall appoint nine supervising inspectors, who shall be selected for their knowledge, skill, and experience in the uses of steam for navigation, and who are competent judges, not only of the character of vessels, but of all parts of the machinery employed in steaming, who shall assemble together at such places as they shall agree upon, once in each year at least, for joint consultation and the establishment of such rules and regulations for their own conduct and that of the several boards of inspectors within the districts." These rules and regulations must be made in conformity with the law, otherwise they will be liable to lead to difficulty and illegal acts on the part of inspectors. The law also requires the inspectors in certain cases to act in a judicial character, "touching the performance of their duties by engineers and pilots," and for this purpose they are clothed with the "force to summon before them witnesses, and compel their attendance by the same process as in courts of law." These investigations are very frequently of the greatest importance, not only to those on trial, but to other interested parties; as in cases of collision between two boats, when the inspectors must investigate the conduct of the pilots on duty when the collision occurred. The decision of the inspectors in such cases very often determines the subsequent action of the parties injured by the accident. Hence it is that persons holding these offices should not only have the qualifications required by the act, but they should be men of good judgment, capabable of understanding the law and of executing it in a proper manner. This could hardly be expected of new and inexrienced persons who had never made the law their study. In fact, inspectors cannot have too much experience in these branches of their duties.

There are also other reasons why good and experienced men should not be removed from these offices, and among them is the further perfection of the system for the safety of life on these vessels. This can only be safely done by long experience and close observation by those having charge of the subject. Those who took part in the framing of the act of 1852, know the amount of labor spent upon it by some of the best men in that Congress, and by experts of large experience in every station of the steamboating business, and who were occupied on that measure during a large portion of that long session. It was then regarded as being very imperfect in many respects, but it was the best that could be framed at that time, and the further perfection of the system was left to the future, as experience in its operation would render evident. These imperfections and deficiencies have manifested themselves in many respects since the law has been in operation, and with a view to such additional legislation as was regarded necessary in the matter, the board of Supervising Inspectors were convened at Washington at an early day of the last Congress, for the purpose of furnishing committees of Congress with the result of their experience in the administration of the law, and to give their views in regard to the additional legislation necessary. This consultation resulted in a bill being reported from the Committee on Commerce, the provisions of which in many respects are of great public importance. The bill was not reached, however, before the adjournment of Congress, and therefore did not become a law. But as there is a great necessity for its passage, it will no doubt be resuscitated at an early day of the next Congress and probably passed. This will involve the necessity of additional rules and regulations being made by the inspectors in order to carry it into effect, and who are so capable of making these, as those who have already had the largest and *only* experience in such matters?

These offices, the sole object of which is the saving of human life, should be looked upon in a different light from many other offices of the government. When an officer performs his duty satisfatorily in every respect, his peculiar polititical creed should not subject him to removal.

We hope and have no doubt that with the present, as with the former administration, these arguments against the removal of competent and faithful inspectors, will have their proper influence.

Liquid Manuring.

We have had several inquiries respecting this method of fertilizing fields, since the paragraph published by us some weeks ago, in relation to the enormous crop of grass obtained on the Earl of Derby's estate last year. It is an agricultural question of no recent date, but it is only of late that it has attracted much public attention in England. On the continent of Europe (and in Scotland among vegetable gardeners) liquid manuring has been practiced for at least fifty years, and with marked success. It has long been practiced in Holland and Belgium. The people in these countries use the urine of the stable diluted with five times its quantity of water, cart it to the fields in casks, and allow it to flow over their young green crops, in the same manner that our streets are sprinkled with water. Fields of grass thus irrigated are cut from five to six times every year, and the crop is generally very heavy. As soon as the cut grass is removed, the field is irrigated with the liquid manure—generally the next day. Young wheat, oats and barley are irrigated in the same manner as grass. Large fields of cabbages, which are much used for feeding cattle in Holland, are irrigated in the same manner, but receive four or five applications during the season. Sewerage water is now being applied in England with good results, as a liquid manure, especially to gardens in the neighborhood of London.

The liquid manure of a farm should be collected in well covered tanks, puddled with clay, to prevent the loss or escape of the liquid. Each tank should be divided by a wall into two compartments, capable of holding each two or three months' supply. When the first is full, the stream should be turned into the second, and by the time this is full the first is fit for land. It ought always to be applied in a fermenting state.—The fresh urine of cattle, &c., ought to be mixed with its own bulk of water, by which means the loss of ammonia is prevented, as also the caustic effects of urine on the land. Sulphuric acid or burned gypsum may also be added to fix the ammonia. One thousand pounds of urine contain sixty-eight pounds of solid rich fertilizing matter.

Tempering Steel Blades and Dies.

If the blade is very thin, it may be heated in the flame of a spirit lamp, but if somewhat thick it is heated in a clear fire until it assumes a dull red color. It is then taken out and plunged into a bath of oil until ebullition ceases, then taken out, and, while wet, held over the flame of a fire, until the oil begins to burn; it is then plunged again into the oil bath, and kept therein until it is quite cold. This is a method by which steel tools receive an excellent spring temper.

Mr. Oldham, printing engineer of the Bank of England, who has had great experience in the treatment of steel for dies, says it should never be heated above the redness of sealing-wax. On taking it out, he hardens it by plunging it in olive oil, or naphtha, previously heated to two hundred degrees Fah. It is kept immersed only till the ebullition ceases, then instantly transferred into cold water, and kept there till quite cold. By this treatment it is stated the tools come out perfectly clean, and as hard as it is possible to make cast steel, while they are perfectly free from cracks and twists. This latter process deserves a trial by all who harden important cast steel instruments.

The Frigate Niagara and the Atlantic Cable.

It is well known that this noble frigate was sent to England to carry and lay down a part of the great Atlantic telegraph, but the Liverpool *Albion* states that she is incapable of performing this office. The *Niagara* was visited by a deputation of the Directors of the Telegraph Company, who thoroughly examined her, and found, to their regret, that there was not enough space in her to make sufficiently large coils of the cable to insure its safe delivery into the ocean. The British Government has very generously offered the Directors of the Atlantic Telegraph Company another steamship equal to the *Agamemnon*, to take the place of the *Niagara*, to assist in laying the Atlantic cable. The *Niagara* was, at the last advices, to be employed simply as an attendant and assistant in the operation.

Bombay Mechanics' Institute.

Away on the farther shores of India, a mechanics' institute has been established in Bombay, and it held its annual meeting on the 11th of April last. The Governor of the province, Lord Elphinstone, presided on the occasion, and awarded several prizes. It is stated to be a very prosperous and ably managed institution. They read the SCIENTIFIC AMERICAN.

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Mechanics' Club.

At the meeting of the Mechanics' Club, on the 11th inst., Mr. S. S. Clark, of Manchester, N. H., exhibited a model of his folding iron shutter, patented in April last, which is also capable of being made to serve as a Venetian blind. The slats are connected by links, so that all turn together, and are adjusted as a blind by a cam at the bottom, or hoisted as a shutter by any suitable apparatus at the side.

Mr. I. S. Clough exhibibited Estlack's water escape, illustrated on page 236 of our present volume.

The question of the practicability of the transatlantic cable being raised, Prof. H. A. Hildreth, of Boston, who had paid much attention to the subject, thought the enterprise would fail, from the want of allowance for the inequalities of the bottom. Instead of three thousand, it would require, he thought, about nine thousand miles of cable, and consequently that this first attempt at laying the cable would fail, from an insufficient supply in one or both ships. The greater resistance to the current due to the presence of sea water instead of air on the outside of the gutta percha envelope, would, he thought, make this length equal to about 27,000 miles of wire suspended in the ordinary manner in the air.

Mr. S. D. Tillman thought, first, That the wire would not be laid down entire; second, That the current could not be made effective through it if it were; and third, That the cable would be abraded off in a short time in crossing ledges of rock near the coast of Ireland. Like all public spirited citizens, he hoped the great effort to join the continents would succeed, but he doubted if it were even possible, far less actually practicable as a commercial operation.

A large portion of the evening was consumed in a discussion relating to who was the originator of the telegraph. This invention, which was enthusiastically termed by one speaker "the greatest and most important in the world," was claimed very earnestly for Dr. Charles T. Jackson, on the strength of his having explained much of the principle to Prof. Morse, and having been applied to at a subsequent period for instructions how to overcome a difficulty. But the question was pretty evidently settled for the ninety-ninth time in favor of Morse as the man who appreciated the importance of the object, applied a practical recording instrument, and worked for eight years even after his patent was obtained, before it could be successfully introduced. The fact is, that few or no inventions are, on a close metaphysical analysis, the product of a single mind. Many contribute to the result by their advice, suggestions, or speculations; but if any one is not willing to freely give the world the benefit of such aid, content with the simple reflection that he has moderately contributed to the world's progress, he must secure himself by patent at the time, or must come forward with his claim within the two years allowed after the invention has been put in use. Thus much for pecuniary reward. If it be honor alone which is contended for, that unsubstantial, yet sometimes important, reward most certainly belongs to the man who works and who developes rather than to the philosopher who merely thinks, and is finally buried with all his wisdom. Theory is extremely valuable, and philosophical discoveries are in most cases very intimately related to great practical steps in labor-saving and wealth-producing progress, but the philosopher, unless he steps down from the scholastic throne on which he has mounted himself, and drives some discovery forward into a tangible shape, must be content with a reward which, (where it consists in simply knowing and revealing facts in natural science discovered by philosophers before him,) must necessarily be very meagre.

We would not detract one iota from the well-earned fame of Dr. Jackson. As a chemist, geologist, and man of science generally, he stands almost without a rival, and his usefulness will be felt after many of the active, struggling business men will cease to be remembered; but we oppose the idea of allowing a *savan* to wash his hands of all the trouble, and yet claim the glory and emoluments due to real earnest inventors. There may have been scores before who had thought of a device—there may be thousands afterwards who *would have thought of it*—but the man entitled to the reward, both in fame and fortune, is the vigorous prosecutor of the invention. In case two or more strive at once for the same end, there are means provided for testing and settling their claims, but without the manly struggle which seems to fall to the lot of the originators of nearly all important improvements, the merit of an inventor exists only in a quite homeopathic quantity.

We take this opportunity to call attention to the meetings of the Mechanics' Club, which are held regularly most of the year on the second and fourth Wednesday evening of each month, and which might be made a source of great profit to many in this city and vicinity. The meetings are free, and are held at the American Institute Rooms, 351 Broadway. The next subject is that of steamships.

Babbitt Metal.

The *Journal of the Franklin Institute*, in a report of a meeting of the Institute, says:—

Specimens of Garrett's Composition Metal for lining shaft journals, were presented to the notice of the members.

It is said to possess all the anti-friction qualities of the composition known as Babbitt's, with the greater additional advantage of requiring about twice the heat to melt it, which will, no doubt, recommend it to the favorable consideration of those engineers who sometimes melt out a box. It is composed of zinc, copper, and antimony; the first metal predominating largely. In filling the brasses, which are recessed in the usual way, they are heated, and the metal, which should be just above the melting point, is poured in, and after setting, is hammered to close all the cavities, should any be left after filling. The metal is hard and close, and is said to answer its purpose excellently. Upon the Baltimore and Ohio Railroad it has been in use for several months with satisfactory results; and Messrs. Merrick & Sons have lined the boxes of the United States steamer Wabash with it. A fair comparison of the qualities of Garrett's and Babbett's will thus be made, as the five other steamers last built by the government were furnished with Babbitt's metal for all the journals.

[We frequently receive letters inquiring what "Babbitt's metal" is, and the above paragraph would lead persons to the conclusion that there was a distinct metal known by the above name. There is no such metal, nor has a patent been granted for such. In 1839 Isaac Babbitt obtained a patent for the construction of boxes for the journals, wheels, and the axles of carriages, but the patent does not embrace a peculiar metal, it simply covers the lining of a hard shell of metal, with a softer metal for the bearings of axles. The soft metal of copper, antimony, and tin is for the purpose of lessening friction in bearing boxes and the hard shell is for the purpose of preventing the squeezing out of the soft anti-friction metal.

Fog Seas of the Moon.

Professor Challis, of Cambridge, Eng., from recent observations taken of the moon, has come to the conclusion that the dark patches which we see on its disk are fog seas. The general surface and higher projections of the lunar spheroid are altogether uncovered and bare; but vapors and mists have rolled down into the lower regions in sufficient quantity to fill up their basin-like hollows, exactly as water has gravitated into the beds of the terrestrial oceans.

New Wheat.

What a variety of climate we have! In New York the grain fields are still green, and the ears are not yet developed, while in Georgia the wheat harvest is nearly over. New wheat has already been sold in Augusta.

The Toronto *Globe* publishes a list of Canadian vessels. In it are enumerated 48 steamers, 12 propellers, and 172 schooners, in all 227 vessels, the tunnage of which amounts to 40,037 tuns, valued at $2,127,950.

Constitution of Steel.

Steel has always been supposed to differ from wrought iron only by the presence of carbon and by the mechanical arrangement of its particles, but Mr. C. Binks, who recently read a paper on the subject before the Manchester Society of Arts, thinks nitrogen an essential element. Mr. B. gave an account of some analyses made by himself, which proved that the best kinds of steel contain about one-fifth per cent of nitrogen, and the general results of his experiments tend to show that the substances which change pure iron into steel all contain nitrogen and carbon, or that nitrogen has access to the iron during the operation. He holds that neither carbon nor nitrogen, used separately, converts iron into steel, but that it is essential that both nitrogen and carbon should be present. He concludes that steel is a triple alloy of iron, carbon, and nitrogen. With regard to improvements in the present system of manufacture, he was of opinion that the most extensive use of cyanogen compounds, such as ferro-cyanide of potassium, was highly important, and he drew particular attention to the fact that these compounds might be economically formed in the ordinary operations of the blast furnace, so that these operations, properly conducted, might serve the double purpose of purifying the metal and converting it into steel.

Evils of Telegraph Errors.

A case of an error in telegraphing was recently decided at Cleveland, Ohio, against the Lake Erie and Michigan Telegraph Company in favor of Randall Cook & Co., of that place. In 1853, while largely engaged in the wool business, they telegraphed to an agent at Meadville, Pa., to purchase certain lots of wool at 40 cents per pound. The telegraph operator made an error in his message, by making it read 45 cents per pound, at which price a large quantity of wool was bought. The verdict against the Telegraph Company was $1681. The judge charged the jury that the Telegraph Company were liable for damages for the evil results of their errors.

A Novel Turn Table.

On the 2nd inst., Mr. Charles Gould, of the Ohio and Mississippi Railroad, gave a dinner at the Burnet House, Cincinnati, to his friends. After the cloth was removed from the table, a rail track was discovered, connecting the two ends of the table. At one end was a sugar "St. Louis Depot," at the other a "Cincinnati Depot," of the same material. Between these, much to the delight of those present, ran a small locomotive and a train of cars.

Hazardous Yacht Trip.

Charles R. Webb, of Stamford, Ct., has built a sloop-rigged yacht, forty-three feet long and thirteen and a half feet beam, and of twenty tons burthen, with which he intends to run over to Liverpool, and expects to reach there in three weeks' time from starting. This is probably the smallest craft that ever attempted such a feat in navigation, but at the same time it appears to us to be a foolhardy expedition.

To Detect Alum in Bread.

Make a weak decoction of logwood in water, in which pieces of the suspected bread are to be dipped; if it contains alum it will acquire a decided purple dye, which penetrates some distance into the interior. With pure bread, however, no such coloring will take place.

American Camels.

It is said that the Turks look with suspicion on our efforts to contract for building railroads in their country, while we are at the same time buying their camels to breed in our country. They say we want to get rid of our railroads and adopt their "improvement."

The camels which were imported by our government from Arabia, are reported to be doing well in Texas, and as likely to become acclimated as horses. Several native American camels have been born, and others are expected. The only question relates to the quality of the young animals.

The Chemist in the Laundry.

Washing has for its object not only the removal from our clothing of accidental dirt, but also to carry away certain ammoniacal salts, the products of perspiration, which are absorbed from the body by all the clothes that we wear, especially those nearest to the skin. A change of under garment is essential to health on this very account, and the art of washing is more useful in removing the hardened perspiration from the cloth (to which it clings most pertinaciously, like the matter of contagion) than in removing the superfluous dirt which merely offend the eye. Until recently, the laundress's first operation was to prepare "a ley" of potash, which she did by putting wood ashes into a tub having a perforated bottom. The tub was then filled with water, which, trickling through, dissolved in its course the potash contained in all wood ashes. This process is still extant in some parts of the country, especially where wood is used for fuel.

The starting process of washing now is to prepare a ley of soda. Hard water requires more soda than soft; and, when rain water can be procured, alkali may be dispensed with entirely. The utility of soda or of potash in washing arises from the power these alkalies possess of uniting with grease of all kinds, forming a soap; and to disunite the ammonia of the perspiration from the clothes, thus purifying the fabric and rendering it capable of the like absorption when again worn. This important action has hitherto been unnoticed. Now, although we admit their great utility, we particuarly caution all parties not to use too much of these powerful alkalies, because cotton fabrics are partially dissolved by a strong hot soda, potash, or lime ley. It is to this cause that the "bad color" may be attributed, which the housewife now and then justly complains of in the linen. When the outer coatings of the filament of the fabric are thus acted upon, they are quickly influenced by the air, and become of a yellow tint.

There is another cause of "bad color," and that is an insufficient supply of water, or washing too many things in the same liquor. This gives rather a gray tint. The yellow color is, however, the great thing to guard against, as this partakes of a permanent evil; and we mention it in particular, because there are strong washing fluids sold containing lime and soda. In nine laundries out of ten, too much soda is already used; we need not, therefore, desire to increase the evil.

Many laundresses, when they hear complaints of the color of the articles they send home, will make their alkaline ley a little stronger next washing-day, and thus unwittingly increase the evil. A judicious use of soda or pearl ash is highly beneficial, and a saving of labor; but, if in excess, is very injurious.

The strong lixivium, recently recommended for washing linen, has long been known to those who require to cleanse metals from impurities on the surface only. Printers, for instance, may use it with safety to cleanse the face of their type from the unctuous ink used in printing, because the ley is not strong enough to affect the metal. The very low priced soaps are by no means the cheapest in use; and they also impart an unpleasant odor to the linen, which cannot be got rid of.

The use of "blue" in rinse water is too well known to need comment further than to our purpose. The ordinary blue is a compound of Prussian blue and starch. The color that it gives merely covers the yellow tint of the goods, without doing more. We would suggest the use of pure indigo instead of the common blue. This advice is founded upon practice as well as theory. Indigo, in this operation, is without any bad action on the fabric. Persons employed in the "indigo department" of the docks have the whitest linen of all people in London. S. Piesse.

A writer in the Baltimore *American* recommends catnip, bruised and applied to the wound, as a certain cure for the bite of a spider. He says he has frequently applied this remedy to those suffering from such bites, and in every instance they have obtained relief.

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C. A., of N. Y.—Your several concentric tubes of thin metal with the spaces filled with cement for a submarine carriage-way would probably be cheap, but we do not see any advantages aside from this consideration, and believe it very difficult to construct and lay down.

H. P., Jr., of Tenn.—Yes, there has been several machines patented for sowing lime broadcast.

H. K. Alexander, of Pekin, Ill., writes that he has an inexhaustable supply of bituminous coal, and desires to procure the apparatus for distilling, and to be posted in regard to the whole *modus operandi*. Who will give Mr. A. the desired information, and furnish the machinery? Address him as above.

V., of N. Y.—We suspect you are half right regarding Cremona violins. They are, perhaps, estimated like old coins and medals, not so much on account of their intrinsic value, as their age and a certain fame connected with them. You have not given any facts, however, relative to where violins are now made equal to the Cremona.

A. R. D., of Mass.—In making sugar from starch employ two and a half parts of sulphuric acid for one hundred parts of starch and three hundred parts of water by weight—ounces or pounds. Make the starch into a paste first, then stir it in the acid with the water, and boil the whole in a lead pan until it is quite clear. The acid will corrode any other metal than lead. The boiling must be continued for about thirty-six hours.

J. A. R.—The *Golden Rule* has ceased to be published

C. T., of Vt.—There has been a very great number of devices for shooting harpoons into whales by gunpowder. We do not think your chance is good for making a valuable improvement in that line. Mr. C. C. Brand, of Norwich, Ct., has some twenty men at work making a kind of hollow arrow of iron charged with powder, and provided with a fuse. He shoots the arrows, which he terms "bomb-lances," from a heavy gun, and it explodes within the whale. This is the best within our knowledge.

M. B., of N. Y.—Can you not give us more minute information respecting the application of the waste heat of smelting furnaces to generate steam, by James Pittaird? Where did you see it applied in 1826, and what was the result?

J. C., of N. H.—Sulphuric acid and water is the liquid which is employed to remove scale from iron castings in foundries.

T. W., of Ill.—The ventilation of houses is a subject on which it is very difficult to give advice, for the reason that ventilating apparatus should be arranged according to the relative situations of the chimney, rooms, doors and windows. "Griscom on Ventilation" is a good work, published by Redfield, this city. H. Ruttan, Esq., of Coburg, C. W., has an excellent system of ventilation, and we are now preparing engravings to illustrate another which will appear shortly.

L. B. T., of Pa.—Your stone cutting machine, as far as shown, is not new or patentable. Wilson's patented machine exhibits substantially the same features.

S. R., of Ky.—We advise you not to go on a hunting expedition to Africa in search of ivory. The malaria of the country is so fatal to strangers that perhaps not one of your party would survive its influence.

C. T. M., of R. I.—You can drive a rotary pump by forcing water into it from a reciprocating pump, but it would be a very round-about method of propelling a boat, and would involve a great loss of power.

V. R. S., of N. Y.—We cannot tell you where to obtain spring steel 1 1-4 inch wide and 1-8 inch thick. Any steel house can probably supply it. Address Sanderson Brothers, this city.

J. W. H., of Mass.—Wine is made by pressing the grapes, then fermenting the juice in vats kept in a cellar, care being taken not to allow fermentation to proceed to the acetous stage. After it has slightly fermented, bottle it up, seal the bottles and keep them in a cool cellar Address C. M. Saxton, Fulton street, this city, for Hoare's work on the cultivation of the grape vine.

W. R. A., of Pa.—You will find a description of the syphon in every elementary work on hydraulics. It cannot be made to discharge at its top upon any principle whatever.

E. B., of Pa.—Brushes constructed after the manner of fountain pens are not new or practically feasible. The paint will so adhere to the inside case and around the base of the brush as to render them unfit for use in a very short time.

C. E., of Ill.—We are happy to hear that you are in prospect of disposing of your patent on so good terms. The date of the patent referred to is April 24, 1857.

E. M. R., of Pa.—We consider D. K. Clarke's work on Locomotives the best yet published.

B. S. H., of N. C.—The price of volumes 6 and 7 is $4. It will cost less to send them by express than by mail.

H. S., of Pa.—We are out of No. 35, this volume.

C. H. G., of ——.—We hope your discovery for casting gun barrels around "a round hole," as described, will prove of immense advantage to you. You had better cast the first barrel around the hole in your head; and when your first fowling-piece is completed we advise you to make an experiment with it in goose shooting in Sheepshead Bay.

Money received at the Scientific American Office on account of Patent Office business for the week ending Saturday, June 13, 1857:—

C. C. W., of N. Y., $30; G. V. B., of Mo., $20; F. & M of Mass., $60, W. Mt. S., of N. Y., $400; J. B., of N. Y., $275; S. Van S., of N. Y., $100; D. W. H., of Mo., $25; C F. B. E., of Texas, $25, C. & S., of O., $55; J. D. M., of Mass., $55; T. E. C. B., of Ky., $15; J. S. T., of Md., $250; H. H., of N. Y, $30; A. C. C. of Mich., $20; J. O., of Md, $30; C. H. E., of Wis., $30; A. J. & J. A. F., of Vt., $30; S. R. H., of N. Y., $30; J. C. McD., of O., $25; S. & B., of N. H., $100; B. & McC., of Va., $25; N. S., of N. Y., $50; J. K., of N. J., $25; J. F. H., of N. Y., $25; J. H., of N. Y., $15; E. L., of N. J., $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, June 13, 1857:

A. F. H., of N. Y.; J. H., of N. Y.; J. S., of O.; C. F. B. E., of Texas; A. C. C., of Mich.; D. W. H., of Mo.; E. L., of N. J.; B. & McC., of Va.; R. H. T., of N. Y.; C. & S., of N. Y.

TO PATENTEES AND ASSIGNEES.

Letters Patents belonging to the following parties are remaining at our office uncalled for, and we would thank the inventors or assignees who have an interest in the inventions which they represent, to order them away, and thus relieve us the care and space of storing them. Heretofore we have carefully preserved such documents in a fire-proof safe, but if the owners do not call for them within a reasonable period after this notice, we shall be obliged to turn them out, to make room for new arrivals. Parties ordering by mail will please remit six or eight stamps, to pay postage.

Thomas Hopper.	C. L. Adancourt.
T. G. Boone.	C. B. Brown.
William Benjamin.	H. Waterman.
J. Robingson (2).	A. Duboce.
B T. Babbitt.	M. Smith.
Holmes & Butler (2).	J. L. Morgan.
McNab & Carr.	C. G. Best.
W. B. Godfrey.	S. Bull.
S. T. Field.	O. Hussey.
A. Stoner.	Henry Harrington.
James Greenhalgh, Sen.	S. S. Hurlbert.
J C. fr Solomon (2).	John Parry.
J. Andrews.	J. B. S. Hadaway.
O. Rice.	B. F. Cook.
G. H. Wood.	W. Brooke.
W. H. Towers.	A. C. Palmer.
W. P. Walter.	Linus Yale.
J. G. Ernst.	Hughes Henry.
C. Green.	J. L. Hardeman.
John L. Mason,	J. F. Burgin
Thomas Durden.	E. Emmert.
A. M. Glover.	J. C. Briggs.
Z. A. Butts.	W. T. B. Read.
D. Woodbury	V. N. Mitchell.
S. Hull.	J B. McCormick.

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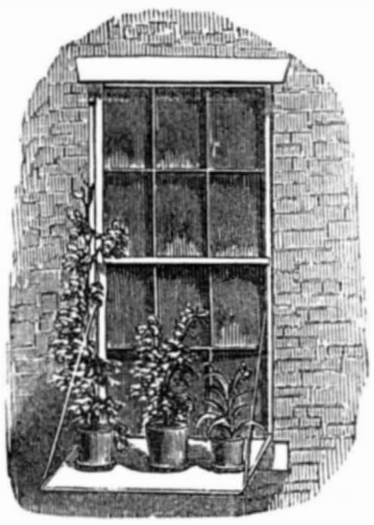
Science and Art.

Window Sill Flowers.

MESSRS. EDITORS—On page 289 of the present volume of the SCIENTIFIC AMERICAN, appears a very sensible and public spirited article on "Window Sill Flowers." I would like to add a few suggestions.

It has always seemed to me an excellent custom, that of keeping flowers in windows. I have rarely been without a few, and have always felt amply repaid for the little trouble of watering them once in a day or two. This spring, wishing to enlarge my "window garden," I procured a board of the length of the sill, and about two feet broad—perhaps two



feet and a half—one of the long edges of which rests on the window sill, while the front edge is supported by wire rods, which are connected with the sides of the window frame by means of a nail and hook, so that the whole can be removed in less than one minute, if there is occasion (fig. 1). A kind of projecting window sill is thus formed, easily accommodating a dozen pots of flowers. A box of earth might be substituted, with the only objection that it would be heavier, and not nearly so portable.

A light cast iron frame, with shelves in semi-circular form, much like the common flower stands, might be made at very moderate cost. It could be easily adapted to a window. Each shelf could have a trough for receiving the dripping water. Vines would

look pretty on each side of the window; and nearly every kind of flower could be arranged with various displays of taste. Does any one think that such an ornament would not please the eye as well as do the most skillful and expensive carvings? Is there any objection to the country odor they would bring with them into our impure atmosphere? They would make our atmosphere more healthy, besides sweetening it.

Perhaps in another age it will not seem so absurd as it will now, to make the suggestion that money would not be misspent by city authorities in distributing, under proper regulations, frames of this kind to those who would give promise of carrying out the plan. The city might, at least, encourage the design, by bearing some portion of the expense. Very large sums are often expended for public parks; a small portion of this might well be afforded, to encourage the cultivation of flowers. I do not know what would be the probable cost of such a frame as I have proposed. I am about to have one made of wire.

I should mention that pots containing flowers need to be sheltered from the too great heat of the mid-day sun, else the roots will be injured. This sheltering can easily be accomplished by laying a piece of stiff paper over the pots—leaving an opening for the flower stalks—and letting the paper project two or three inches. I hope some others may be led to try this plan. R. B.

New Haven, Conn., June, 1857.

Anatomical Cause of Short-sightedness.

MESSRS. EDITORS—The eyes of short-sighted persons do not only differ in shape from healthy or far-sighted eyes, but also in their peculiar mode of refracting the light. In the place where the optic nerve enters the eye, and forms the retina by spreading itself over the back of the eye ball, a small, transparent blister is seen, apparently filled with a watery fluid. This blister (which lies directly upon the optic nerve) likewise occasions a greater convexity of the eye, which, from its increased refractibility, requires more light, and this short-sighted persons need, in order to see distinctly.

This, then, is the cause of short-sightedness, at least in the greater number of cases. However, from the manifest relation of natural events to each other, other causes can produce similar effects; for instance, a man's lameness may arise as well from having one leg shorter than the other as from an inflammation, whereas in the first case, the cause is to be found in the bones, in the second it is in the skin, muscles, or ligaments. But shortness of one leg is most frequently the cause, therefore we are accustomed to say that limping arises from a difference in the length of the legs. It is just so with this blister in the eye producing a disease, called, from its similarity to another which comes on the cornea, "staphyloma" (*posticum*). The staphyloma is not the sole cause of short-sightedness, but is so in nine cases out of ten.

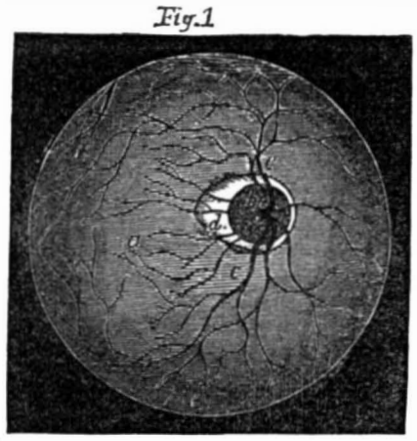
Dr. Jaeger observed that among nearly 4,000 patients whom he had yearly in his private practice, about 60 or 80 had the staphyloma, which makes a proportion of 2 to 100. The same proportion was found to exist in 1,170 eyes anatomically examined after death. The length of the axis of the eye, which amounts in a healthy state, to 23-26 millimetres, (a millimetre is 0·3937 of an English inch,) was found to be increased to 28 or 32, but nevertheless, the coatings of the eye had only expanded, and nowhere separated. But the disease had lessened the quantity of the black pigment which, as a protection against too much light, lines the internal coating of the eye, just as the interior cavity of the camera obscura, the telescope, microscope, and other optical instruments, is covered with a faint black color.

If now the interior of an eye diseased with the staphyloma be examined by means of an eye-reflector, we find on the bottom of the eye, above and beside the optic nerve, the blister already mentioned appearing as a light-colored transparent object, from which it cannot be exactly decided whether it is turned towards the interior of the eye (and towards the lens) with its end pointed or concave. Jaeger thinks it has a pointed form, similar to a cone. This abnormal body generally corresponds in size to the degree of short-sightedness, and covers with its broad end only the exterior half of the optic nerve, (which is seen far back in the eye,) while its pointed end, either horizontal or frequently oblique, is directed towards the so called yellow spot (*maculea lutea*) in the retina. The accompanying diagrams will better explain this subject.

When the staphyloma is yet slight, (fig. 1) so that the eye is not rendered much more convex, and very little short-sightedness is produced, it presents the following appearance on an examination with the eye-reflector.

The *back ground* of the eye, *a*, appears—partly from the light thrown upon it by the examination instruments, partly from the numerous little red blood-vessels invisible to the naked eye—of a splendid orange hue; this color is so shaded that the greater part of the middle is yellow, becoming darker towards the margin. The optic nerve, *b*, appears round, and of a faint rose color as it enters the eye. From the center of this nerve extend the blood-vessels, *c c*, which nourish the retina, some of a dark blood-red color,

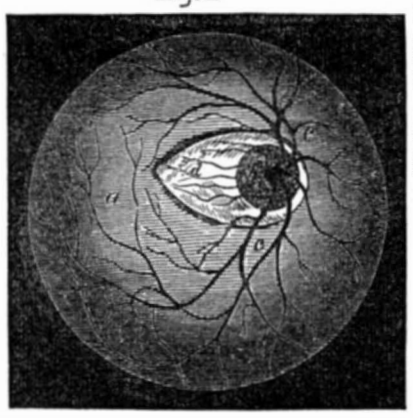
Fig. 1



others of a deep orange. Upon the optic nerve lies the blister-like substance which forms the perceptible seat of the disease, and which, as mentioned above, has received the name "staphyloma posticum," *d*. The same appears of a light brilliant color, and covers the optic nerve. On the external margin there are frequently deposits of pigment, which clearly indicate its limits. In worse cases, this strange substance generally increases in breadth.

In aggravated cases, (fig. 2,) it increases more in its length than in its breadth, and hangs over the optic nerve like a pyramid inclined to one side. At the same time the blood-vessels of the eye are more largely developed, and take a perceptibly winding

Fig. 2



course. The aspect is wonderfully beautiful to the observer. The patient himself cannot see it, nor would he enjoy it much if he could.

Space does not permit us to pursue further the examinations of this disease. But the reader will, perhaps, inquire whether the knowledge of these facts may not be applied to some practical use for the cure of short-sightedness? It is even so. We not only find many of the remedies useless, even partly injurious, which have been hitherto applied to this disease, but now for the first time we can introduce a "dieter for short-sightedness," a description of which we will reserve for one of the following numbers. N. GLEWITZ.

Stratford, Conn., June, 1857.

Treatment of Asthma.

The following is given in the Boston *Medical and Surgical Journal*, by Dr. Stilwell, as an efficacious remedy for the above disease. He says:—

"I have administered the hydrate of potassa in this disease with most decided temporary and permanent relief. Employed in 5-grain doses three times a day, the effect is immediate and marked. Of the *rationale* of its effects I am ignorant; but the administration of it is soon followed by a slight expectoration of the viscid mucus, attended with an amelioration of all the most urgent symptoms. In hay asthma, rose fever, and cases analogous to true spasmodic asthma—caused by certain perfumes, vapors, &c.—this remedy produces the same relief. That hydrate of potassa possesses a specific influence upon the air passages I think is undoubted, and I am prepared to learn that it will be found one of our most efficacious remedies in 'pseudo-membranous' croup, to disengage the false membrane after the inflammatory action has been reduced."

Fever Poisons.

In a work recently published by an English physician on the transmission of fevers, after referring to the value of thorough ventilation, light and cleanliness to disinfect clothes and apartments to disperse infectious fever poison, he says:—

"It is important to know regarding infection, that when not destroyed or dispersed in the sick-room, it attaches itself and adheres with great tenacity to all articles of furniture—chairs, tables, drawers, &c., nestling in their innumerable pores; and unless these articles be scrubbed with a solution of chloride of lime, or exposed to a strong heat, or a free current of air for several hours, it may again become evolved, *more virulently than at first*, after the lapse of weeks. But it chiefly adheres to cotton and woolen materials. The patient's body-clothes and blankets become saturated with it, like a sponge with water; and in airing these materials a mere passing breeze is not always sufficient to carry it away."

The average consumption of soap in Great Britain is about seven pounds for each person annually. Upon this calculation it is reckoned that 9000 tuns are used in London every year, to produce which it requires about 5500 tuns of fat and 650 tuns of soda.

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